





## PimaCommunityCollegeCatalog 2007/2008

### Pima County Community College District

4905 East Broadway Blvd.  
Tucson, AZ 85709-1010  
(520) 206-4500

Pima Community College is an equal opportunity, affirmative action employer and educational institution committed to excellence through diversity. See page 360 for more information.

To request a reasonable accommodation, a minimum of five working days advance notice is requested. For the general public, please contact the Affirmative Action office at (520) 206-4539; for PCC students, contact the campus Disabled Student Resources office where the accommodation is needed.

#### Catalog replacement cost: \$3 (includes postage)

The Pima Community College catalog and the semester *Schedule of Classes* are available as both printed and electronic documents published on the College Web site at <http://www.pima.edu>. Printed documents are prepared on the basis of the best information available at the time. Both the Internet and printed catalog are official. The Internet version is updated regularly, therefore the Internet version should be relied upon as the most up-to-date.

All information—including statements on tuition, fees, course offerings, admission, and graduation requirements—is subject to change without notice, obligation, or liability.

Published: May 2007

### Pima County Community College District Board of Governors



District 1  
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District 2  
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*Chair*



District 3  
Sherryn S. Marshall



District 4  
Scott A. Stewart,  
*Secretary*



District 5  
Marty Cortez

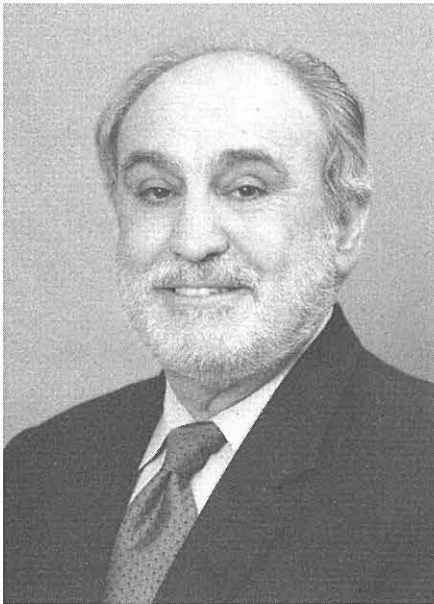


**PimaCommunityCollege**

**(520) 206-4500**

**[www.pima.edu](http://www.pima.edu)**





## Message from the Chancellor

Welcome to the wealth of opportunities that Pima Community College offers you. As a student at our College, you will become part of a living educational legacy that stretches back to traditions of the first universities in the Middle Ages and extends forward well into the technological excitement and challenges of this 21st Century.

To help you meet your educational goals, Pima Community College provides a wide variety of degree and certificate programs. In addition, we offer these programs in a variety of ways to ensure access for the range of needs and lifestyles of our students today. You can take traditional semester day and evening classes, accelerated classes, or a mix of both. You can take classes at any (or all) of our six college campuses, at our convenient education centers and at more than 100 off-campus locations throughout Pima County. You can even take our fully-accredited classes at home or work via cable TV or over the internet.

At our campuses, you will find full-service, one-stop centers where you can meet with a counselor, find out more about available financial aid, improve your study skills, register for classes, and more. The orientation sessions will introduce you to the College and academic life. Along the way, you will meet outstanding faculty, staff and administrators, all dedicated to helping you reach your educational goals.

Although college classes for transfer and occupational skills are what we are best known for, as a comprehensive community college, Pima Community College offers much more in service to our community. We offer learning opportunities for students of all ages, including non-credit personal interest classes, and adult basic skills classes, including G.E.D. programs. We also champion work skills improvement for individuals and provide workshops, training classes and other services for local businesses and industry in support of the economic development of Southern Arizona.

I wish you success in achieving your goals, educational and otherwise, and sincerely hope you will enjoy your experience at Pima Community College and the lifelong benefits from the knowledge that you acquire.

Cordially,

Roy Flores, Ph.D.  
Chancellor



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# Academic Calendar

## Fall Semester 2007

Faculty advising begins .....	Aug. 15
All College In-Service Day (College Closed) .....	Aug. 17
* <b>Fall classes begin</b> (for 16-week classes) .....	Aug. 22
‡ First 8-week session begins .....	Aug. 22
Add week (traditional-length courses) .....	Aug. 22 – Aug. 28
Labor Day holiday (College closed) .....	Sept. 3
Drop/Refund deadline for 16-week classes .....	Sept. 4
Graduation Application Deadline .....	Oct. 12
First 8-week session ends .....	Oct. 17
‡ Second 8-week session begins .....	Oct. 18
Withdrawal deadline (for 16-week classes) .....	Nov. 5
Veterans Day holiday (College closed) .....	Nov. 12
Thanksgiving holiday (College closed) .....	Nov. 22 – Nov. 25
Final exam week .....	Dec. 10 – Dec. 16
<b>Fall semester ends</b> (traditional semester) .....	Dec. 16
Second 8-week session ends .....	Dec. 16
Winter recess (students/faculty) .....	Dec. 17 – Dec. 24
Holiday (College closed at 12:00 noon) .....	Dec. 24
Holiday break (College closed) .....	Dec. 25 – Jan. 1

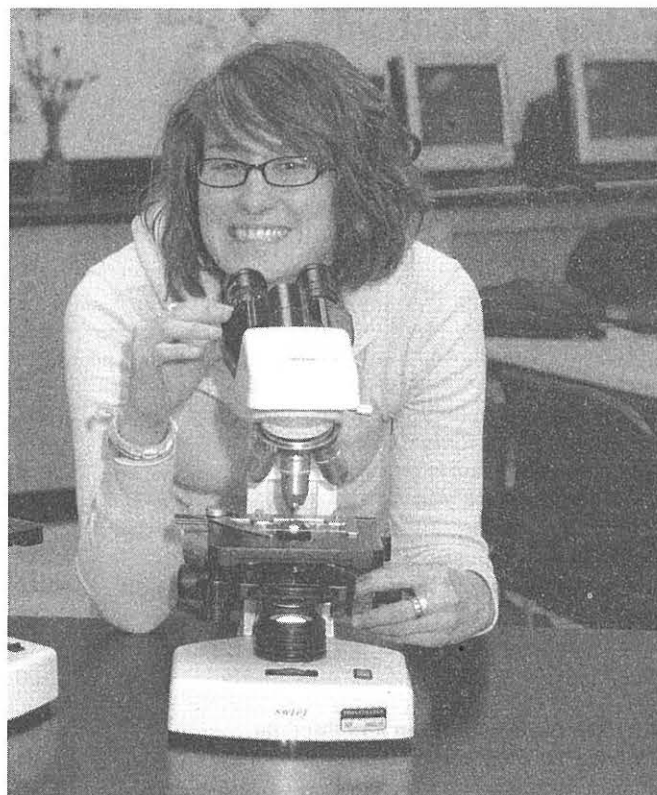
## Winter Intersession 2007-08

‡ <b>Classes begin</b> .....	Dec. 17
<b>Classes end</b> .....	Jan. 9

## Spring Semester 2008

College opens .....	Jan. 2
Faculty advising begins .....	Jan. 14
All Faculty Day .....	Jan. 11
Martin Luther King Jr. holiday (College closed) .....	Jan. 21
* <b>Spring classes begin</b> (traditional semester) .....	Jan. 22
‡ First 8-week session begins .....	Jan. 22
Add week (traditional-length courses) .....	Jan. 22 – 28
Drop/refund deadline for 16-week classes .....	Feb. 4
Graduation Application Deadline .....	Feb. 20
** Rodeo holiday (College closed) .....	Feb. 21 – 22
First 8-week session ends .....	Mar. 16
Spring break (no classes) .....	Mar. 17 – 23
‡ Second 8-week session begins .....	Mar. 24
Withdrawal deadline (for 16-week classes) .....	Apr. 14
Final exam week .....	May 14 – May 20
Second 8-week session ends .....	May 18
<b>Spring semester ends</b> (traditional semester) .....	May 20
Graduation .....	May 15

**Information is subject to change without notice, obligation or liability**



## Summer Sessions 2008

### Session A

Memorial Day holiday (College closed) .....	May 26
Classes begin .....	May 27
Add .....	May 28
Drop/refund/audit .....	May 30
Classes end (5 week session) .....	June 30
Independence Day holiday (College closed) .....	July 4

### Session B

Classes begin .....	July 7
Add .....	July 8
Drop/refund/audit .....	July 10
Classes end (5 week session) .....	Aug. 8

### Session C

Memorial Day holiday (College closed) .....	May 26
Classes begin .....	May 27
Add/drop/refund/audit .....	June 2
Graduation Application Deadline .....	June 27
Independence Day holiday (College closed) .....	July 4
Classes end	
• 8-week session .....	July 21
• 10-week session .....	Aug. 4

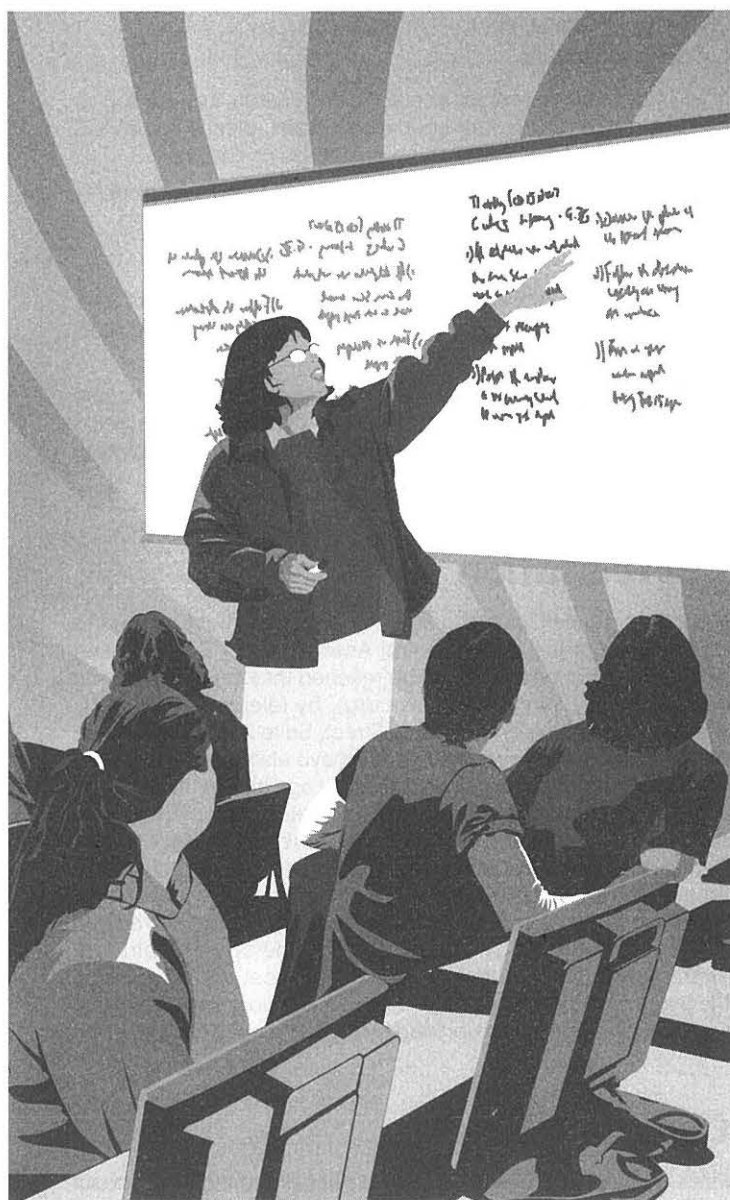
\* Registration continues throughout the semester for short-term, accelerated, and open-entry classes.

‡ Sessions may begin earlier at Davis-Monthan Air Force Base.

\*\* The College will be open for classes/activities on the Saturday and Sunday following the 2008 Rodeo Holiday.



# The College



## How This Catalog Can Help Students To Succeed

This catalog is a valuable tool in answering your questions and helping you while you are at Pima Community College. The Pima Community College Catalog is organized to guide you through each step of your college career at this institution:

- Admission/Registration
- Tuition and Fees
- Financial Aid
- Certificate and Degree Requirements
- Course Descriptions
- Campus Services
- Faculty Information
- Selected Policies

If you have any questions about the material in this catalog or need help in planning your educational goals, please see a PCC advisor or counselor at any of the campuses or centers.

This catalog is one of three publications that are essential to a student's success at Pima Community College.

The other two publications are:

- **Schedule of Classes**—a semester publication of classes offered. The schedule is available online ([www.pima.edu](http://www.pima.edu)) and at all campuses.
- **Student Handbook**—an annual publication of regulations and resources at PCC. The handbook is distributed to students attending orientation and available at any campus advising and counseling center.

## Accreditation

Pima Community College is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. The Commission can be reached through their web site ([www.higherlearningcommission.org](http://www.higherlearningcommission.org)), by telephone (800-621-7440), or by mail at 30 N. LaSalle Street, Suite 2400, Chicago, IL 60602-2504. The following programs have also been accredited or certified by specialized agencies recognized by the Arizona Department of Education and/or the U.S. Department of Education: Automotive Technology, Building And Construction Technology, Dental Assisting, Dental Hygiene, Dental Laboratory Technology, Emergency Medical Technician, Health Information Technology, Histotechnology, Machine Tool Technology, Nursing, Paralegal, Pharmacy Technology, Radiologic Technology, Respiratory Therapy, Surgical Technology, Teacher Education, Therapeutic Massage, and Veterinary Technology. In addition, Pima's Aviation Technology program is approved by the Federal Aviation Agency.

## College Vision

Pima Community College will provide access to learning without the limits of time, place or distance.

## College Values

We value:

- People
- Integrity
- Innovation
- Quality
- Diversity

## Mission Statement

The mission of Pima Community College is to develop our community through learning.

## College Goals

1. To improve access to all College programs and services.
2. To provide excellent teaching and responsive student services.
3. To prepare a highly skilled workforce.
4. To create student-centered partnerships with colleges and universities.
5. To provide effective developmental and adult basic education.
6. To create partnerships with business and industry, the local schools, government, and other constituencies that enhance the community.
7. To foster responsible civic engagement.

## Institutional Effectiveness Policy

The College is committed to ensuring institutional effectiveness through continuous assessment and quality improvement. Accordingly, the College will establish responsive and integrated planning, evaluation, development and project-support systems to help the College fulfill its mission in the most effective and efficient manner.

(Adopted by the College Board of Governors, March 11, 1992)

The College annually measures its overall mission performance by reporting to the community through the College planning process.



## Historic Profile

In 1966 the citizens of Pima County, Arizona, voted by a large margin to form a junior college district. The county superintendent of schools appointed a five-member governing board that laid the groundwork for Pima College. With help from committees composed of citizens, the board developed educational goals, created a financial plan, selected a president, and chose a campus site.

The next year the citizens of Pima County elected a board to replace the appointed officials and approved a \$5.9 million bond issue for the College. In 1969, construction on the first campus began on a 267-acre site in the foothills of the Tucson Mountains west of the city.

The College's first classes met in the fall of 1969 at Tucson Medical Center, Villa Maria, and Marana. In the fall of 1970 Pima College officially opened its doors to 3,543 students. Classes were held in unlikely quarters, a hangar at the Tucson International Airport. By January of 1971, students in all programs attended classes in the 11 buildings on Anklam Road — today's West Campus, which has expanded to include a center for the arts to serve more than 12,000 students.

Expansion and evolution soon began. In 1972 the board renamed the institution Pima Community College to better reflect its mission of service to the community. And it began to offer greater access through additional campuses.

In 1974 the College opened the Downtown Campus at Stone Avenue and Speedway Boulevard. The first classes were held in a remodeled post office building. With the purchase of neighboring structures and the construction of the campus center and classroom technology building, the campus grew to 10 buildings. The campus currently serves more than 10,000 students.

In 1975 the College established the Community Campus to supplement traditional on-campus education. Currently, this campus offers classes at more than 145 sites throughout southern Arizona, and is the hub for distance learning. The Community Campus oversees the Center for Training and Development, a non-credit workforce development skills training unit that was established in 1963 and became part of the College 10 years later. Pima Community College Adult Education, a part of Pima County since 1969, joined the College in 2000 and is headquartered at Community Campus. The Corporate and Community Education office at the Community Campus offers customized training for the business community, noncredit courses, and study tours. After occupying several sites, the permanent Community Campus facility opened in 1997 near St. Mary's Road and Interstate 10 and serves about 4,000 students.

The College established the East Education Center in 1976, which became the East Campus in 1980. Located on a desert site east of Davis-Monthan Air Force Base, the campus doubled in size in the fall of 1989 with the construction of the student union and library. It has since expanded to accommodate more than 6,000 students. In 2004, the College and Tucson Parks and Recreation built a 21-acre park on the northwest edge of the campus, with soccer and softball fields, and a fitness facility for students.

The South Education Center opened in 1986, and by 1993 had grown into the Desert Vista Campus, located near Interstate 19 and Valencia Road. The campus serves nearly 4,000 students each semester, including many who use the training and student services of the Center for Training and Development. The campus also houses a charter high school serving Native American students.

A 1995 Pima County bond election enabled the College to use taxpayer-supported bonds to finance much-needed expansion

and important facility and technology improvements throughout the Pima County Community College District.

The Northwest Community Learning Center opened in 1998 and in fall 2003 was replaced by Northwest Campus on North Shannon Road. The Northwest campus offers a full spectrum of educational, recreational and cultural programs and services to more than 4,000 students. Major areas of study include the arts and sciences, preparation for health careers and hotel and restaurant management. In 2000, the College established the Northeast Community Learning Center and in 2002 opened the Southeast Community Learning Center. In 2003, the Community Performing Arts and Learning Center in Green Valley opened.

In partnership with area school districts, East, Northwest and West campuses host branches of Aztec Middle College, an alternative high school.

For many of its 41 years, Pima Community College has ranked among the ten largest multi-campus community colleges in the nation, and currently serves more than 80,000 students annually.

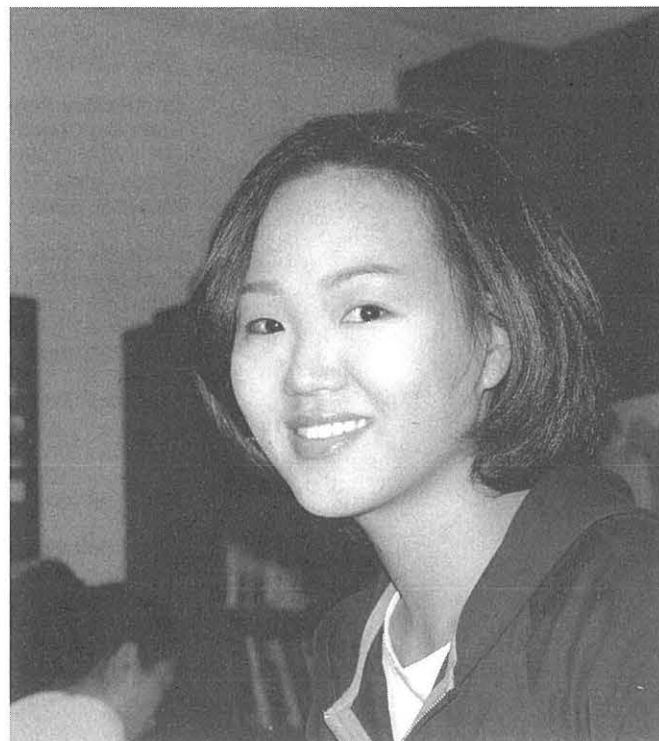
### Pima County Community College District Presidents/Chancellors

#### Presidents

Dr. Oliver Lane	1967-1969
Dr. Kenneth Harper	1969-1972
Dr. Irwin Spector	1972-1978
Donald Klaasen (Acting)	1978-1979
Dr. S. James Manilla	1979-1988
Diego Navarette	1988-1989
Dr. Brenda Beckman (Acting)	1989-1990
Dr. Johnas Hockaday	1990-1992

#### Chancellor (*title change*)

Dr. Johnas Hockaday	1992-1995
Dr. Robert Jensen	1995-2003
Dr. Roy Flores	2003-present



# Pima County Community College District

## District Office

4905 East Broadway Blvd.  
Tucson, AZ 85709-1010  
(520) 206-4500  
(520) 206-4530 (TTY)

## Maintenance and Security

6680 S. Country Club Rd.  
Tucson, AZ 85709-1700  
(520) 206-2733  
(520) 206-2682 (TTY)

## Campuses

### Community Campus

401 North Bonita Ave.  
Tucson, AZ 85709-5000  
(520) 206-3933

### Desert Vista Campus

5901 South Calle Santa Cruz  
Tucson, AZ 85709-6000  
(520) 206-5000

### Downtown Campus

1255 North Stone Ave.  
Tucson, AZ 85709-3000  
(520) 206-7171

### East Campus

8181 East Irvington Rd.  
Tucson, AZ 85709-4000  
(520) 206-7000

### Northwest Campus

7600 North Shannon Rd.  
Tucson, AZ 85709-7200  
(520) 206-2200

### West Campus

2202 West Anklam Rd.  
Tucson, AZ 85709-0001  
(520) 206-6600

## Educational Centers and Offices

### Alumni Association (See District Office)

4905C East Broadway Blvd.  
Tucson, AZ 85709-1320  
(520) 206-4646

### Arizona State Environmental Technology Training Center (ASETT)

(See Community Campus)  
401 North Bonita Ave.  
Tucson, AZ 85709-5515  
(520) 206-6363

### Aviation Technology Center

7211 South Park Ave.  
Tucson, AZ 85709-6185  
(520) 206-5910

### Center for the Arts

(See West Campus)  
2202 West Anklam Rd.  
Tucson, AZ 85709-0295  
(520) 206-6986

### Center for Learning Technology

(See Community Campus)  
401 North Bonita Ave.  
Tucson, AZ 85709-5000  
(520) 206-6410

### Center for Training and Development

(See Community Campus)  
5901 South Calle Santa Cruz  
Tucson, AZ 85709-6365  
(520) 206-5100

### Community Education

(See Community Campus)  
401 North Bonita Ave.  
Tucson, AZ 85709-5505  
(520) 206-6574

### Community Performing Arts and Learning Center

1250 West Continental Rd.  
Green Valley, AZ 85614  
(520) 625-5063

### Davis-Monthan Air Force Base Education Center

5355 East Granite St., Suite 130  
Tucson, AZ 85709-5040  
(520) 206-4866

### Northeast Education Center

Catalina Village Shopping Center  
7816 East Wrightstown Rd.  
Tucson, AZ 85709-5800  
(520) 206-2525

### PCC Adult Education

#### Administrative Offices

(See Community Campus)  
401 North Bonita Ave.  
Tucson, AZ 85709-5600  
(520) 206-6500

### PCC Adult Education Eastside Learning Center

(Not pictured on map)  
1630 South Alvernon  
Tucson, AZ 85709-5620  
(520) 881-5520

### PCC Adult Education

#### El Pueblo Liberty Learning Center

(Not pictured on map)  
101 West Irvington, Building 7  
Tucson, AZ 85709-5640  
(520) 294-6705

### PCC Adult Education

#### El Rio Learning Center

(Not pictured on map)  
1390 West Speedway  
Tucson, AZ 85709-5630  
(520) 882-0940

### PCC Adult Education

#### Lindsey Center

(Not pictured on map)  
1602 South Third Ave.  
Tucson, AZ 85709-5610  
(520) 884-8628

### Pima Community College Foundation

(See District Office)  
4905C East Broadway Blvd.  
Tucson, AZ 85709-1320  
(520) 206-4646

### Public Safety and Emergency

#### Services Institute

**Administrative Offices**  
(See Community Campus)  
401 North Bonita Ave.  
Tucson, AZ 85709-5520  
(520) 206-6350

### Public Safety and Emergency

#### Services Institute

**Training Center**  
(Not pictured on map)  
4211 South Santa Rita Avenue  
Tucson, AZ 85714-1641  
(520) 746-9343

### Small Business Development Center

(See Community Campus)  
401 North Bonita Ave.  
Tucson, AZ 85709-5900  
(520) 206-6404

### Southeast Education Center

Cienega High School  
12901 East Colossal Cave Rd.  
Vail, AZ 85641  
(520) 879-2988

### Workforce and Business Development

(See Community Campus)  
401 North Bonita Ave.  
Tucson, AZ 85709-5500  
(520) 206-6569



# College Locations





## Community Campus

As Tucson, Pima County, and the entire Southern Arizona region continue to grow and change, Community Campus responds with degrees, certificates, training and comprehensive student services to meet the needs of our dynamic student population. Community Campus serves over 50,000 students each year, offering flexible degree and certificate programs and services to meet every need, including fully online and hybrid options, self-paced distance courses, and online advising and tutoring. Community Campus is also home to two vital community programs. Adult Education, for adult learners with less than high school education, includes Family and Workplace Literacy, General Equivalency Diploma (GED) Preparation, and College Transition opportunities. Community Education provides personal interest classes and activities for everyone, from pre-kindergarten children through senior citizens.

Through Community Campus, students can complete Associate of Arts (AA), Associate of Business (AB), Associate of General Studies (AGS), Associate of Arts Elementary Education (AAEE), Associate of Applied Arts (AAS), and Associate of Applied Science (AAS) degrees; AGECE general education certificates for transfer; specialized basic and advanced certificates; post-degree teacher training certificates, endorsements, and professional development; workforce development programs; and customized courses and certificates developed in industry specific disciplines on a contractual basis. The Associate of Applied Science Business and Industry Technology (AAS-BIT) degree includes industry certifications ranging from A+ and Net+ to Cisco.

Community Campus services include development and delivery of classes and programs in a variety of modes and locations in support of college wide programs and initiatives. The Community Campus has been serving students since 1975, offering credit and non-credit classes at its campus location (401 North Bonita Avenue) and at more than 100 facilities throughout southern Arizona. Teaching sites include Davis Monthan Air Force Base, Green Valley, and locations throughout the Tucson area. Community Campus is at the center of the College's distance education programs, offered via cable TV and the Internet.

The teacher training program offers post-baccalaureate teaching certificates, available online; special endorsements in Reading, English as a Second Language, Middle Schools, and Structured English Immersion (SEI) for currently certified teachers; an Associate of Arts degree in Elementary Education; basic and advanced certificates in Educational Technology; and professional development courses for K-12 educators and administrators.

Through its Workforce and Business Development division, the College provides comprehensive, cost-effective training options for individual workers, as well as for businesses and organizations. Workforce and Business Development consists of a contract training department, along with the Center for Training and Development (CTD), the Public Safety and Emergency Services Institute (PSESI), Workforce Investment Act (WIA) Programs, the Small Business Development Center (SBDC), the Arizona State Environmental Technology Training Center, and Arizona Prison Programs.

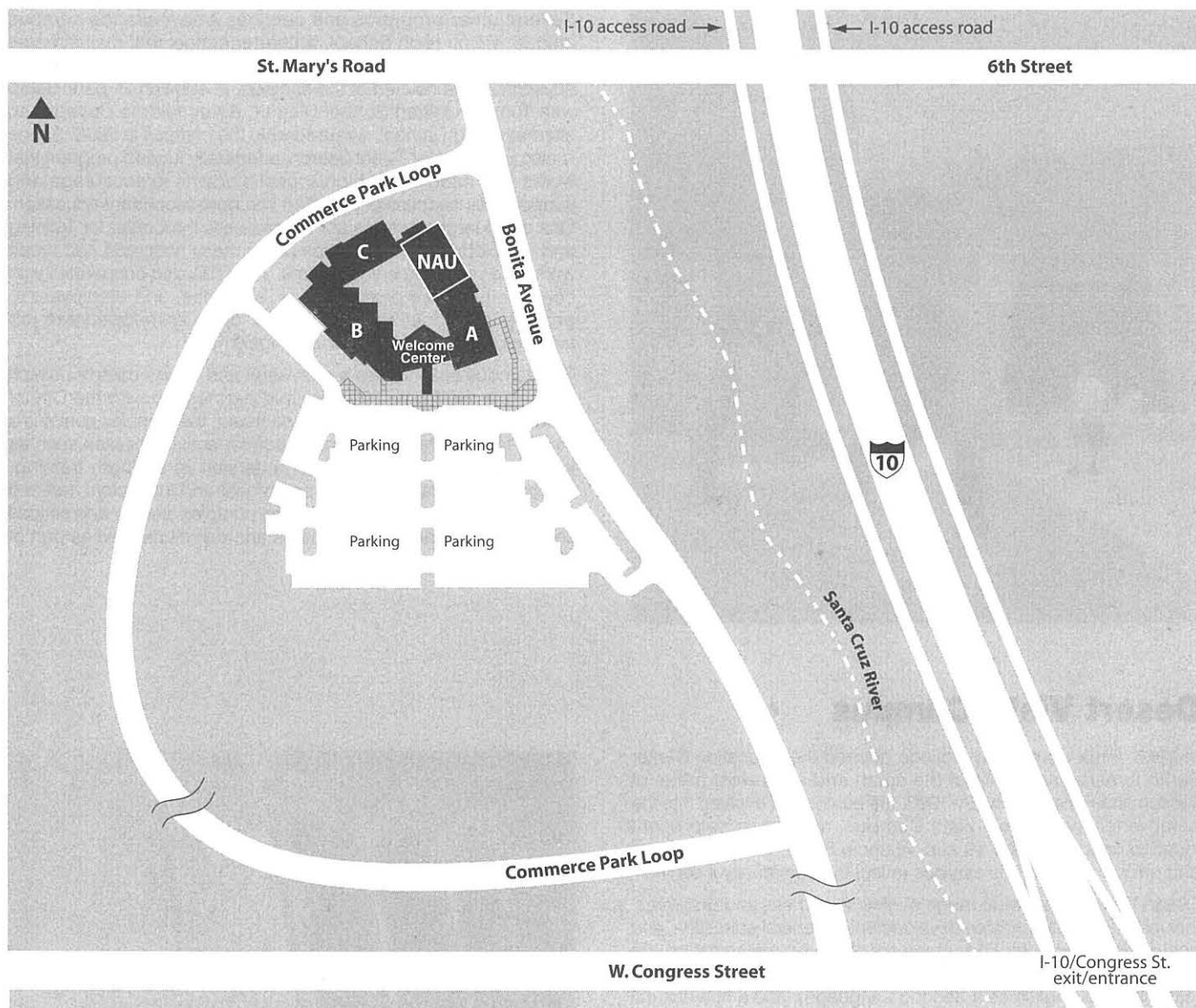
The Workforce and Business Development contract training department provides performance consulting services, economic development initiatives and customized professional development and training for businesses and their employees. The Small Business Development Center provides business consulting and training services that address every stage of business development from start-up to business expansion and retention. Individual workforce training services are provided by the Center for Training and Development.

Pima Community College Adult Education, with sites throughout Pima County, coordinates adult basic education classes and services. PCCAEE offers an array of programs, including GED preparation classes and testing, English for speakers of other languages, citizenship classes, College Transition opportunities and education programs for specific populations.

Community Education programs and services include non-credit general interest classes, senior programs, motorcycle safety classes, Pima for Kids summer classes for K-8 students, workshops and seminars, as well as educational study tours throughout the Southwest and Mexico.

The Center for Learning Technology (CLT) houses the College's broadcast-quality video production facilities, telecourse and internet development and delivery center.

The Community Campus facilities also include Northern Arizona University (NAU). NAU has offices, an interactive classroom and labs, and distribution control for its distance learning operations throughout Southern Arizona at the Community Campus.



**Area A:** Arizona State Environmental Technology Training  
Open Computer Lab  
Conference and Training Center  
Continuing Education for Professionals  
High Tech Training Rooms  
Public Safety and Emergency Services Institute  
Small Business Development Center  
Workforce and Business Development

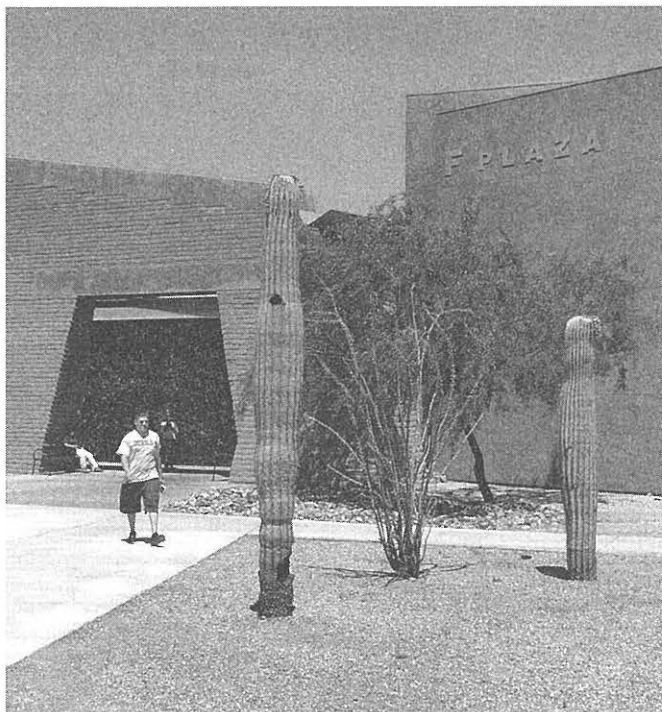
**Area B:** Administration  
Administrative and Business Services  
Admissions and Registration  
Advising and Counseling  
Campus Support Services  
Adjunct Faculty Resource Center  
Assessments/Testing  
Telecourse Resource Center  
Library Services  
Online Help Desk (520-206-6400)

**Area B:** Career Counseling  
Cashier's Office  
Community Education  
Pima Community College Adult Education  
Student Development  
Instructional Administration  
Post-Degree Teacher Certification Program  
Receiving/Mailroom Services

**Area C:** Center for Learning Technology  
Telecommunications and Production Services  
Telecourse and Interactive Classroom Distribution Center  
Broadcast Studio

**NAU** Northern Arizona University Classrooms  
NAU Administrative Offices





## Desert Vista Campus

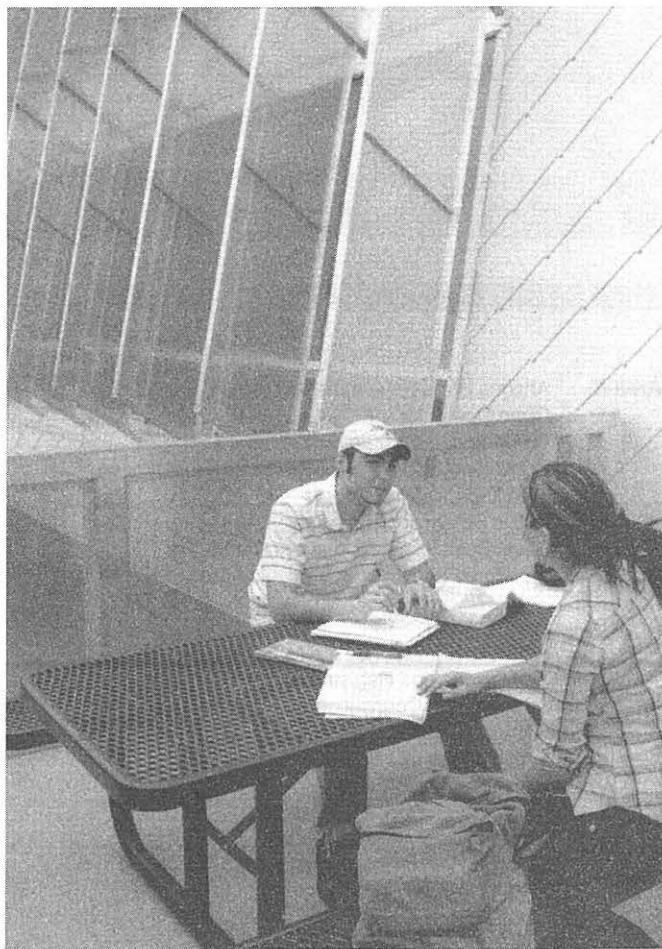
In 1986, Pima Community College opened the Education Center South to serve residents of the south and southwest areas of Tucson and Pima County. By 1993, the center had evolved into the comprehensive Desert Vista Campus, moving to its present location near Interstate 19 and Valencia Road. The architecture and unique colors of the campus reflect the community it serves.

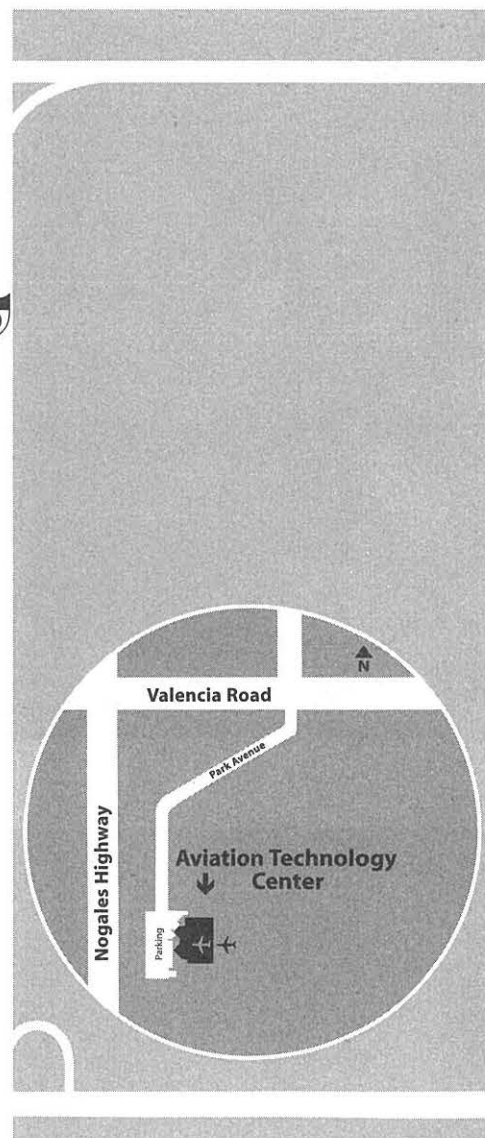
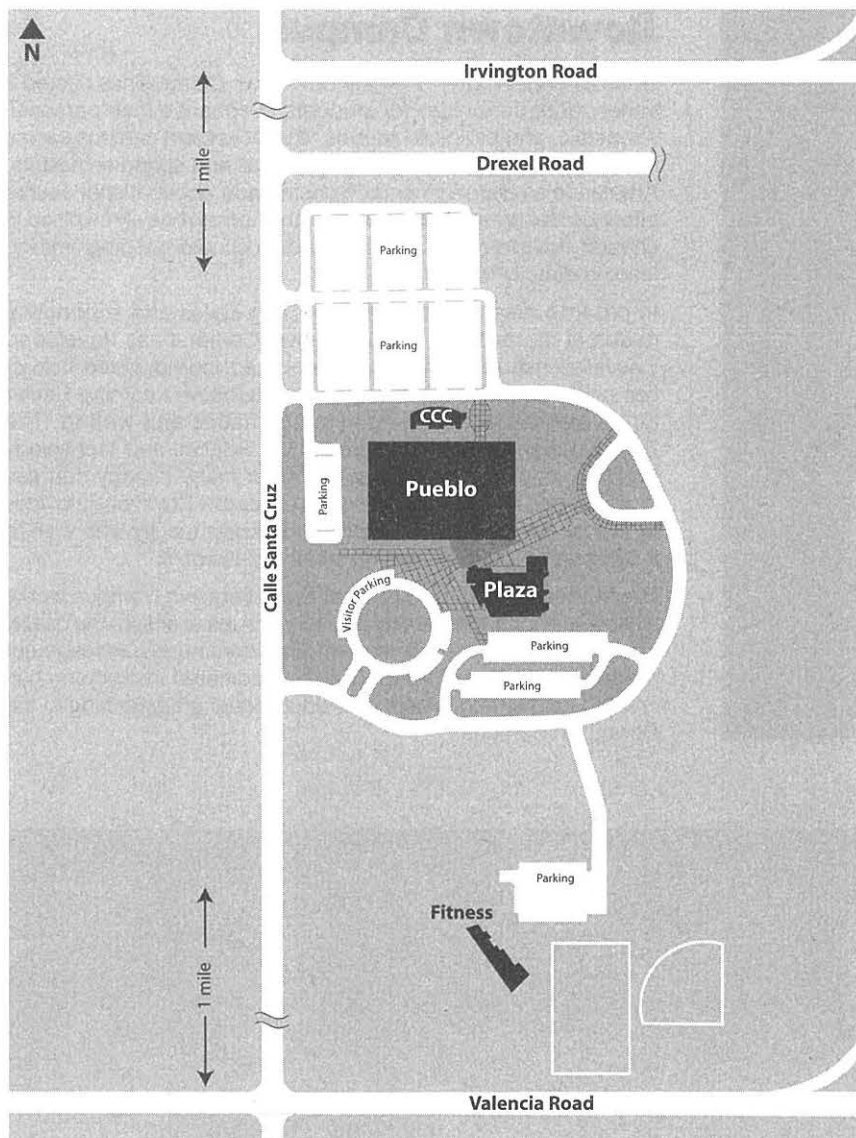
Desert Vista offers a wide range of diverse courses and programs, including university transfer, developmental, general education, and occupational. A variety of courses are offered in mathematics, the sciences (biology, chemistry, astronomy, and physics), languages (Spanish and English as a Second Language), and a rich cultural arts curriculum, including mariachi studies and mural arts. Among the signature programs provided by the campus is the Aviation Technology program located on the grounds of Tucson International Airport at the Aviation Technology Center. This program provides training in aviation mechanics and structural repair and is one of only a few programs of its kind nationwide. Other signature programs include Culinary Arts, Child Development Associate and Early Childhood Education.

Services that support student success include a comprehensive Learning Center which provides tutoring and workshops designed to help students reach their educational goals, and the Child Development Center which offers child care for children of PCC students, employees, and the community at large. The campus also has a vibrant day and evening Student Activities program and just recently added a Cyber Café in a central location where students can easily access websites and check e-mail in a relaxed environment. In addition, the 5,000 square foot Desert Vista library serves students, faculty, college employees and the community. Together with the Computer Commons, the Assessment and Testing Center, and the Adult Education Resource Lab, the Library provides a welcoming atmosphere with versatile student space. The campus also provides a full range of student support services through a convenient One Stop Center. The center also provides bilingual services.

Several other programs and services also make the campus unique. Vision High School, a charter school that mainstreams dually enrolled high school students into the community college environment, is housed at the campus. In addition, in partnership with Tucson Unified School District, Aztec Middle College, an alternative high school, was added to the campus in 2006. Space is also provided for Talent Search, a federally funded program that works with middle and high school students to encourage and support their successful transition into post-secondary education. One of the largest entities at the campus is the Center for Training and Development (CTD) which offers many noncredit and credit workforce development programs. The CTD also cooperates with community-based organizations, agencies, and employers to provide individualized year-round, open-entry/open-exit job training certificate programs for employment.

The campus also houses a recreation and fitness complex which opened in the fall of 2004. Built in partnership with the City of Tucson Parks and Recreation Department, the complex contains a fitness facility which provides space for activity classes such as kick-boxing, aerobics, and yoga as well as strength training, complete with state-of-the-art equipment and instructors certified as personal trainers. To complete the complex, soccer and softball fields were also added for campus and community use as part of the partnership.





**Pueblo Building** Adjunct Faculty Offices  
Administrative Offices  
Audio/Visual Services  
Bookstore  
Business Office  
Cafeteria  
Campus Police  
Center for Training and Development  
Classrooms  
Culinary Kitchens  
Faculty Offices  
Faculty Service Center  
Laboratories  
Learning Center  
Student Activities

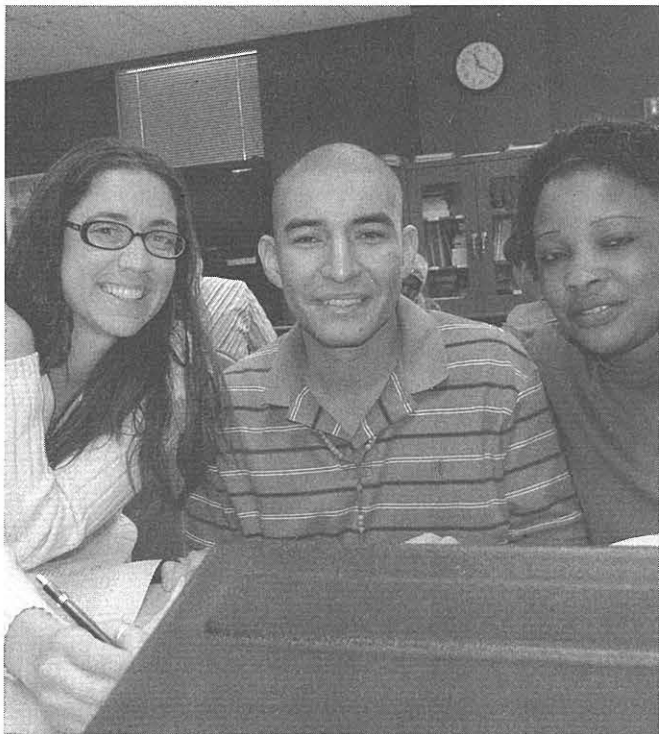
**CCC Building** Child Care Center

**Plaza Building** Admissions/Registration  
Advising and Counseling  
Assessment/Testing Center

Career and Transfer Center  
Cashier  
Center for Individualized Learning  
Center for Training and Development  
Classrooms  
Community Outreach/Financial Aid  
Computer Commons  
Disabled Student Resources  
Information Center  
K-12 Outreach  
Library  
One Stop/Welcome Center  
Orientation Center  
Student Services  
Talent Search

**Fitness Building** Fitness Classrooms

**Aviation Technology Center** Aviation Classrooms/Laboratories

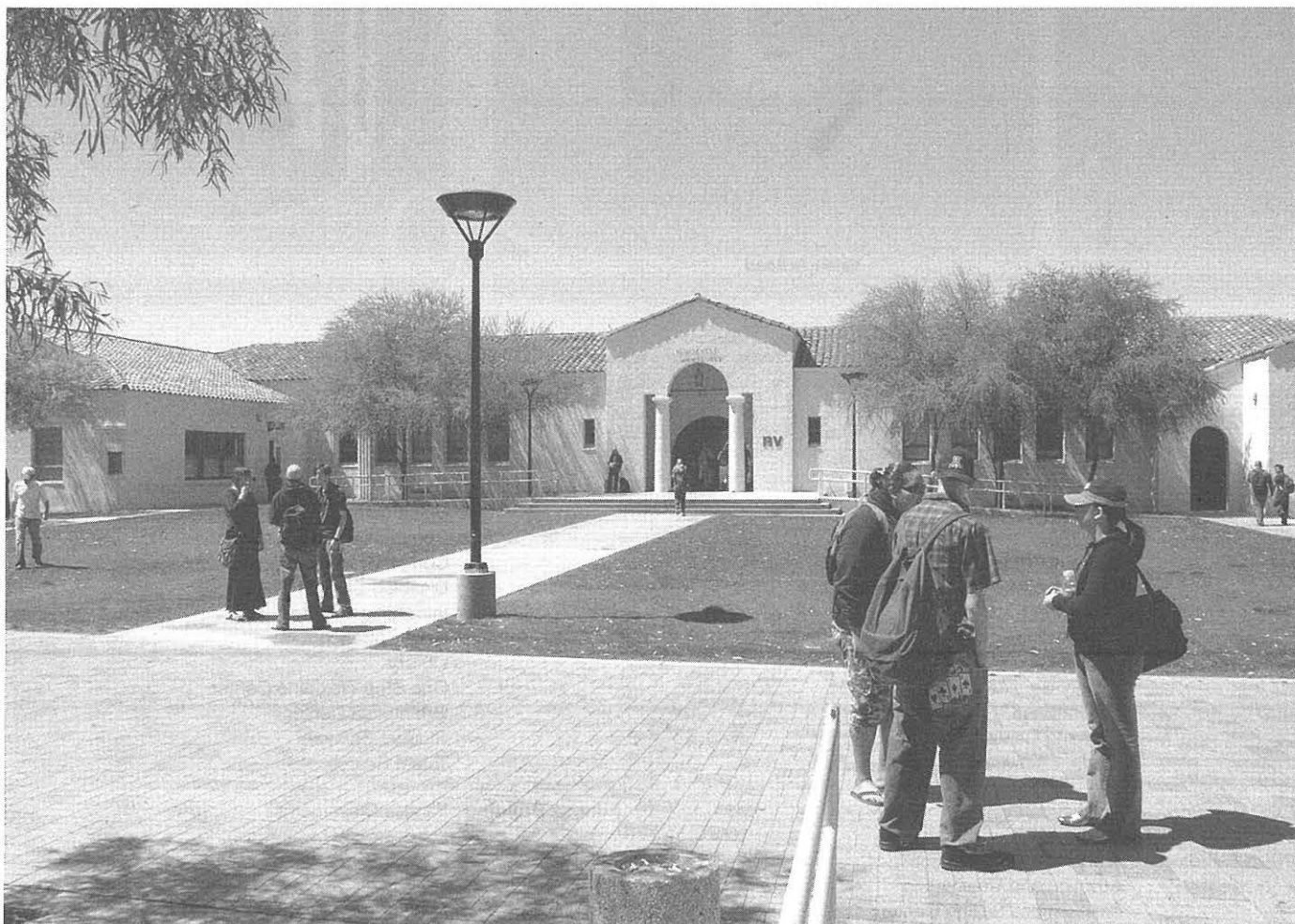


## Downtown Campus

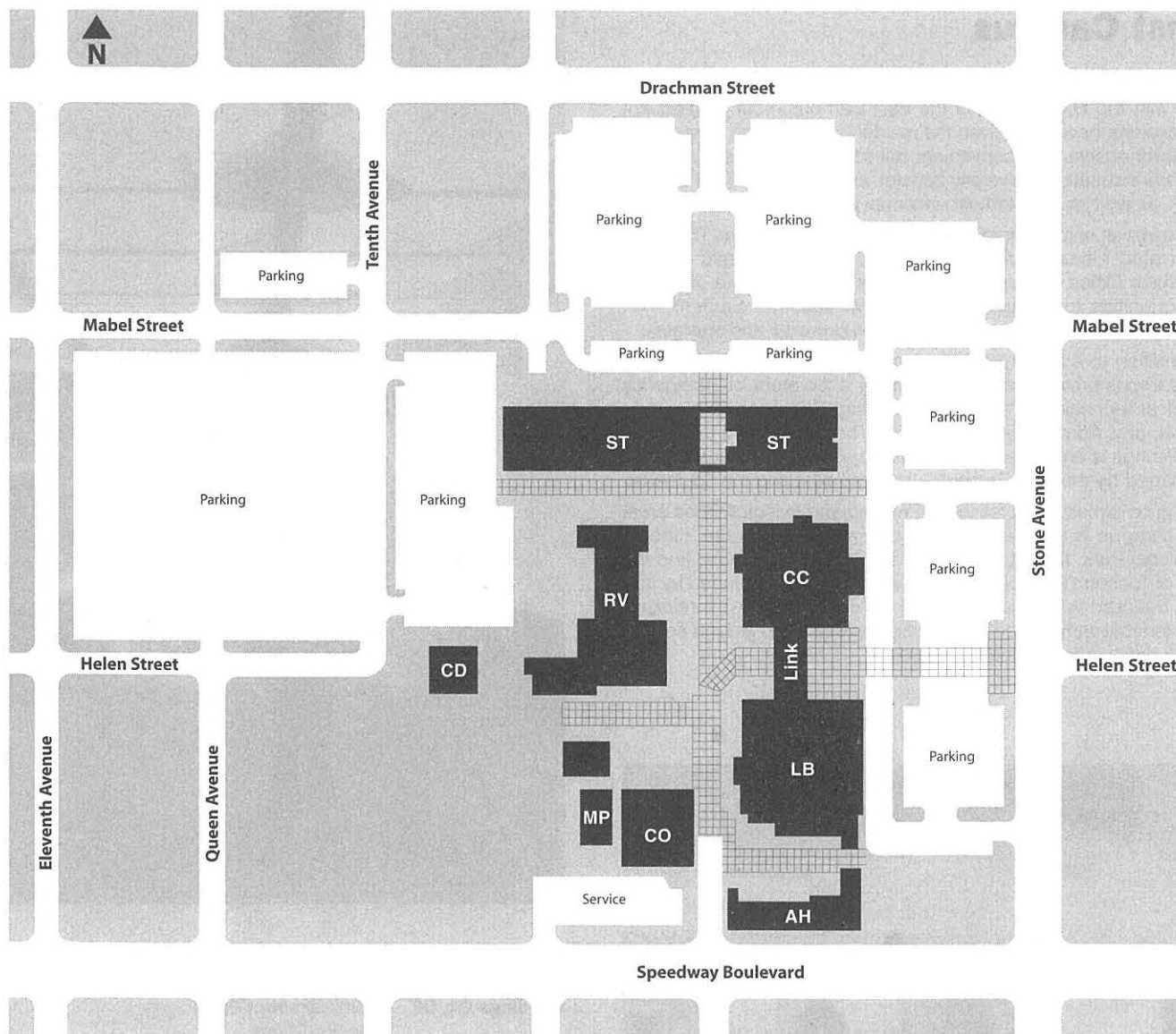
Since its beginning in 1974, the Downtown Campus has offered a variety of opportunities for students to enhance their personal, academic, and professional lives. The Downtown campus serves more than 10,000 students during the fall and spring semesters. A balance of developmental, transfer, and occupational course offerings has created an enrollment that is both heavily involved in university transfer (41%) and immersed in occupational programming leading directly to work (30%).

In order to meet the different learning styles and scheduling needs of its students, the Downtown Campus has developed innovative instruction, including supervised, individualized instruction using the latest technology. The Alternative Learning Center offers self-paced learning in mathematics and writing. The Biology Learning Center, located in the Science and Technology building, offers self-paced learning for many biology courses taught at the College. In addition, the Computer Commons provides technical assistance to students and assists faculty who wish to incorporate computer learning into the classroom.

Every occupational discipline at the Downtown Campus works closely with local community advisory groups to ensure the quality and relevancy of its curriculum. This continuous assessment process, coupled with capable and dedicated instructors, has created unique and exceptional educational programming at the Downtown Campus.





**Classrooms**

Arts and Humanities Building (AH)  
 Campus Center Building (CC)  
 Library (LB)  
 Roosevelt Building (RV)  
 Science & Technology Building (ST)

**Offices**

CO Campus Business Services  
 Campus Police  
 CC/ LB/ ST Faculty Offices  
 RV Administrative Offices  
 CC Student Government  
 MP Maintenance/Physical Plant

**Student Services**

CC Admissions/Registration  
 Bookstore  
 Cashier  
 Financial Aid  
 Tutoring Center  
 Cafeteria  
 LB Advising and Counseling  
 Assessment/Testing  
 Computer Commons  
 Disabled Student Resources  
 Library  
 LINK Career Center  
 Information Center  
 CD Child Development Center

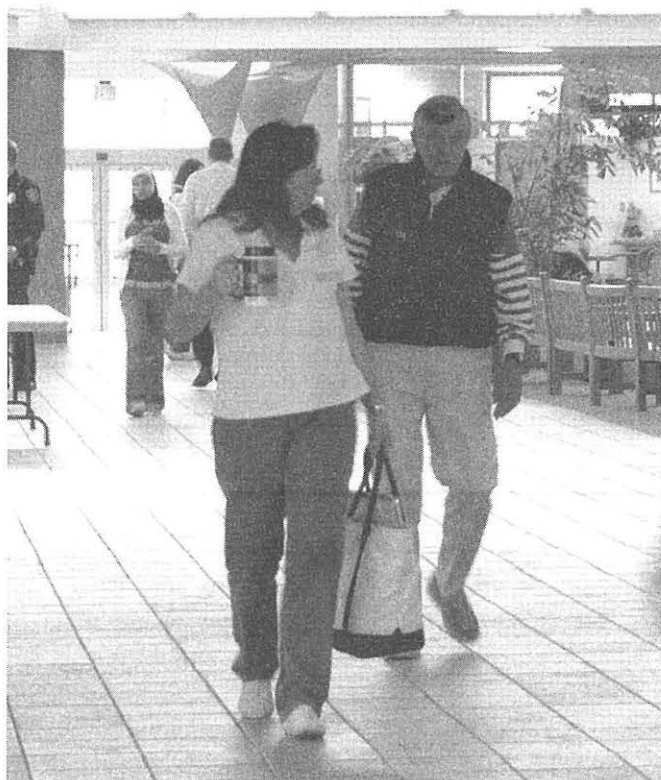
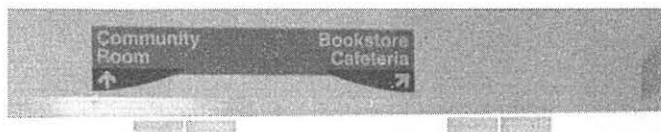
## East Campus

In 1981, Pima Community College expanded its educational facilities with the construction of the East Campus. Four subsequent expansions have now given the residents of Tucson's east side a comprehensive and convenient full-service campus that offers general education, university transfer, and developmental coursework, as well as selected occupational programming.

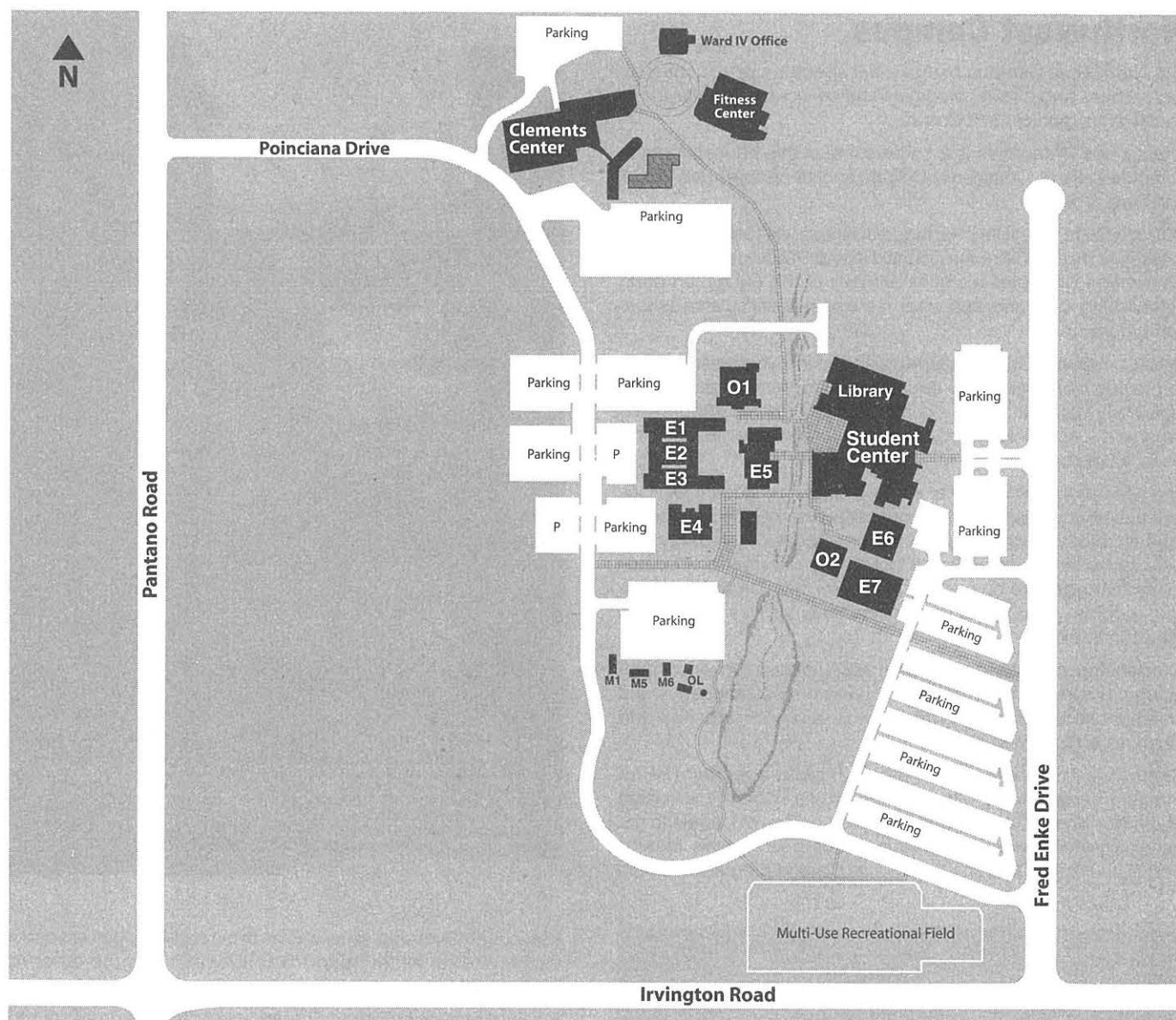
The campus enrolls approximately 6,100 students a year. The newly renovated Library/Student Center supports a dynamic Student Activities Office that ensures East Campus students a variety of opportunities to enhance their personal success. Student Government is strong and student clubs are powerful and energetic.

In addition to a full array of academic and transfer programming, the campus provides vocational training in the areas of Emergency Medical Technology, Pharmacy Technology, Veterinary Technology, Travel, and Administration of Justice. The access and availability of offerings is enhanced by the addition of two educational centers managed by the East Campus—the Northeast and the Southeast.

Sitting on almost 58 acres in the Pantano and Irvington Road area, the campus is adjacent to the Fred Enke Golf Course, Lincoln Regional Park, the Atturbury Bird and Animal Sanctuary, and the City of Tucson's Clements Recreational Center. Surrounded by natural Sonoran vegetation, the East Campus maintains a relaxed, comfortable atmosphere, with buildings clustered around several small patios and shaded courtyards.



<b>Buildings O1, O2</b>	Administrative Offices Faculty Offices
<b>Buildings E-1, E-2, E-3, E-7</b>	Classrooms Science Laboratories
<b>Building E-4</b>	Classrooms Emergency Medical Technology Lab (EMT)
<b>Building E-5</b>	Adjunct Faculty Service Center Art Gallery and Studios Audio/Visual & Faculty Resource Center Classrooms Mail Center
<b>Building E-6</b>	Business Office Campus Police Classrooms Physical Plant Receiving Veterinary Technology Lab (VET)


**Buildings M1, M5,  
M6, OL**

Astronomy Lab  
Classrooms  
Outdoor Learning Center

**Clements Center**

Classrooms  
Recreational Facilities

**Library**

Classrooms  
Computer Support Services  
Learning/Tutoring Center  
Sign Language Lab

**Student Center**

Administrative Offices  
Admissions & Registration  
Advising  
Bookstore  
Cafeteria  
Career Center  
Cashier  
Community Rooms  
Computer Commons  
Counseling  
Disabled Student Resources  
Financial Aid & Veterans Services  
Student Life & Student Government  
Welcome Center



## Northwest Campus

The Northwest Campus brings a full spectrum of educational, recreational and cultural programs and services to families in the northwest region of Pima County.

Shared use of facilities is a cornerstone in this education park, comprising Pima Community College and its partners: the YMCA and Pima County.

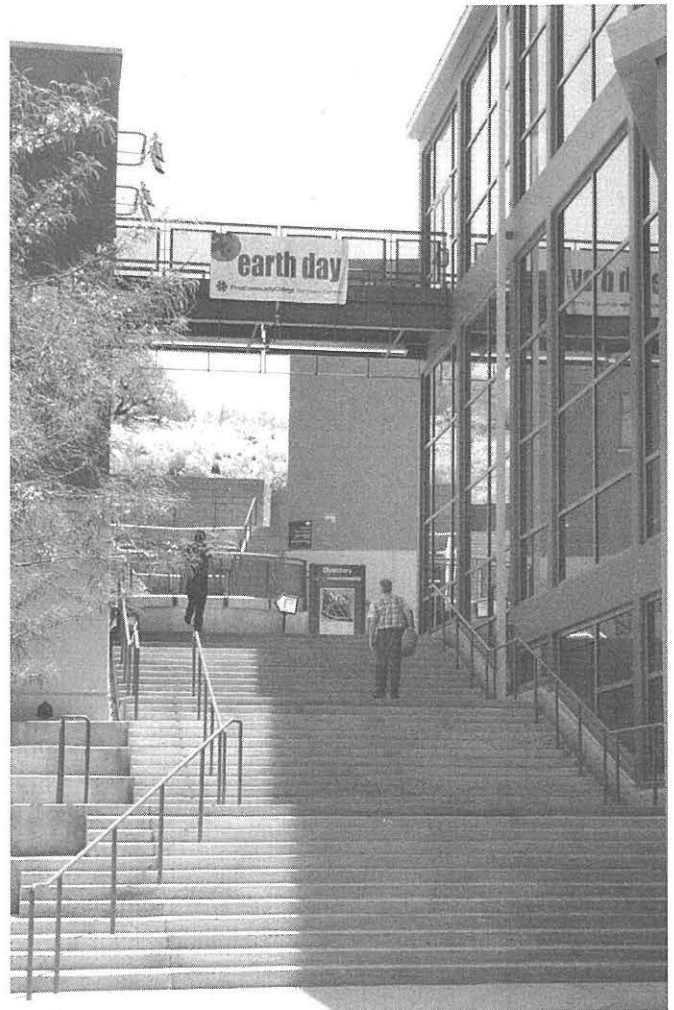
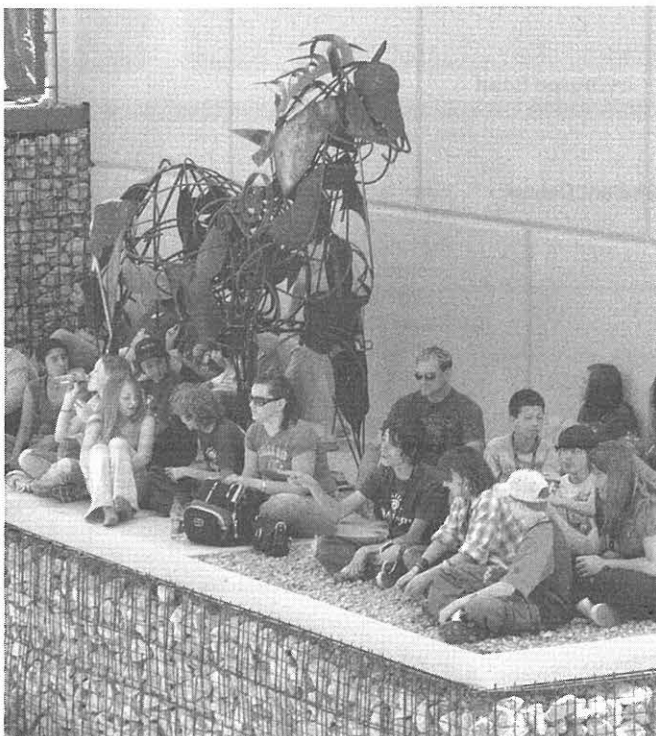
PCC students may take a full range of fitness, wellness and dance classes at the YMCA. Pima County Natural Resources, Parks and Recreation occupies a significant part of the education park, establishing ballparks and other recreation facilities and education programs.

Pima Community College's partners enable the Northwest Campus to provide comprehensive educational programs and services. University transfer, professional, technical and developmental programs – as well as general interest courses – are offered in this beautiful park.

The heart of the campus is a one-stop center for student services and a library/computer commons. Facilities also include classrooms; labs for biology, chemistry, astronomy, physics, geology and geography; and state-of-the-art technology classrooms. A beautiful promenade and outdoor amphitheater provide opportunities for students, faculty, staff and community visitors to gather in relaxed settings.

Outstanding courses are offered in accounting, information technology; business; psychology; social sciences; languages and communication; nutrition and food science; arts and humanities; and sciences and mathematics.

The entire four-year Hotel Restaurant Management (HRM) Program, in partnership with Northern Arizona University, is located at the Northwest Campus and includes courses of interest to the hospitality industry and student internships in local hotels, resorts, and restaurants. The Pima Community College program offers an



Associate of Arts degree as well as two direct-employment certificates, one for Hotel/Resort Management and the other for Restaurant Management.

A new direct-employment Therapeutic Massage certificate for licensure and A.A.S. degree is available, as well as the A.A.S. certificate for Clinical Research Coordinator and a certificate for Direct Home Care Professional. In addition, the Northwest Campus continues to develop new programs and certificates to meet educational needs.

### **Building A** Level 1 (*Boulevard*)

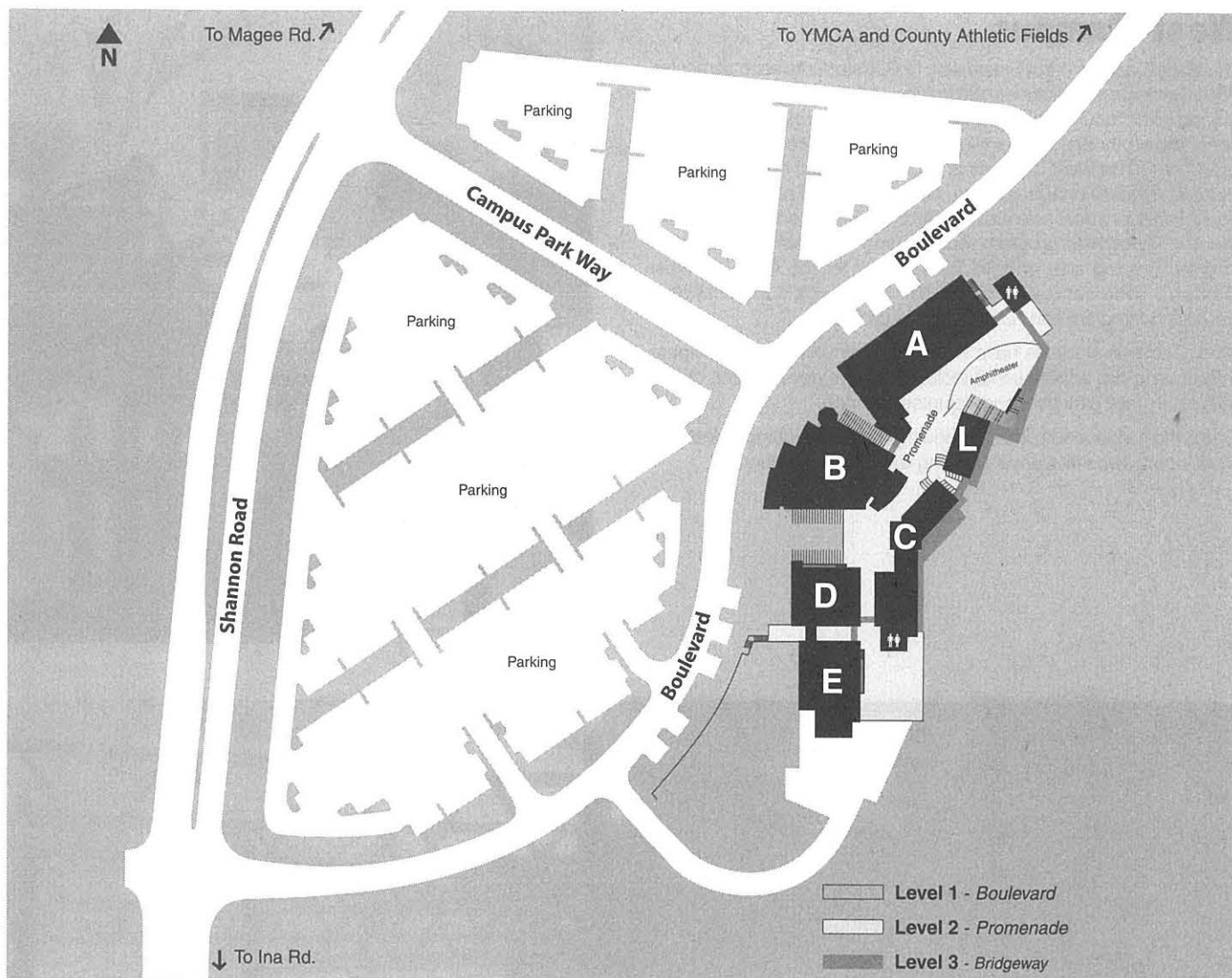
Campus President  
Classrooms

### **Level 2** (*Promenade*)

Community Room  
Student Life  
Therapeutic Massage Program  
Classrooms

### **Level 3**

Faculty Offices  
Hotel and Restaurant Management Program  
Arts Studio  
Classrooms



- Building B** **Level 1 (Boulevard)**  
 Welcome Center  
 One Stop Student Services  
 Admissions/ Registration/  
 Advising/ Financial Aid  
 Business Services  
 Career Center  
 Cashier  
 Counseling  
 Disabled Student Resources  
 Dean of Instruction  
 Dean of Student Development
- Level 2 (Promenade)**  
 Library/ Computer Commons  
 Assessment/ Testing Center  
 Assistive Technology Lab  
 Self-Paced Courses/ Tutoring
- Level 3**  
 Learning Center (Tutoring)  
 Library/ Computer Commons  
 Faculty Resource Center  
 Sign Language Lab

- Building C** **Level 2 (Promenade)**  
 Canyon Café  
 Classrooms
- Level 3**  
 Adjunct Faculty Center  
 Faculty Offices
- Building D** **Level 1 (Boulevard)**  
 Aztec Middle College  
 Classrooms
- Level 2 (Promenade)**  
 Bookstore  
 Student Clubs  
 Student Lounge/ Game Room
- Level 3**  
 Classroom/Labs

- Building E** **Level 2 (Promenade)**  
 Campus Police  
 Central Receiving  
 Classrooms  
 Mailroom
- Level 3**  
 Science Classrooms/Labs
- Building L** **Level 3**  
 Classrooms
- YMCA Facilities**  
 Classrooms  
 Courts  
 PCC Fitness &  
 Sport Sciences Classes  
 Pool

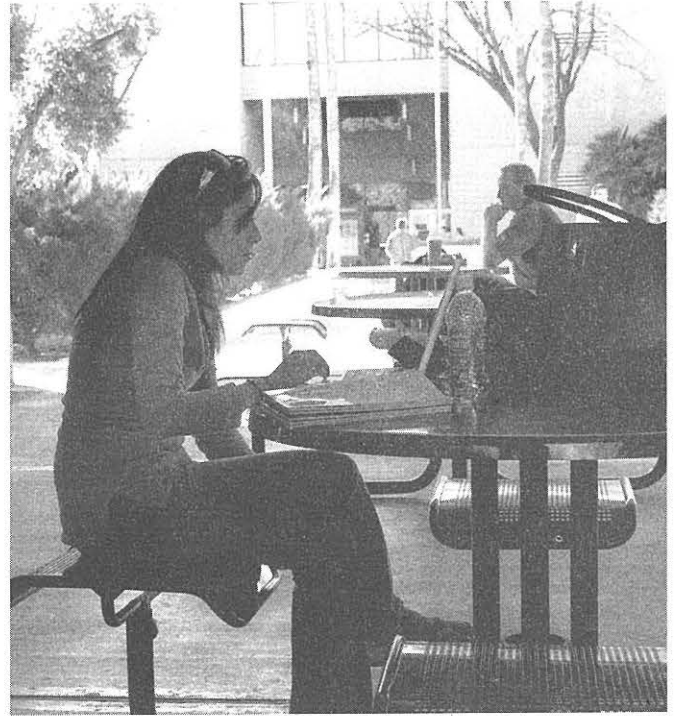
**Pima County Parks  
 & Recreation Athletic Fields**

## West Campus

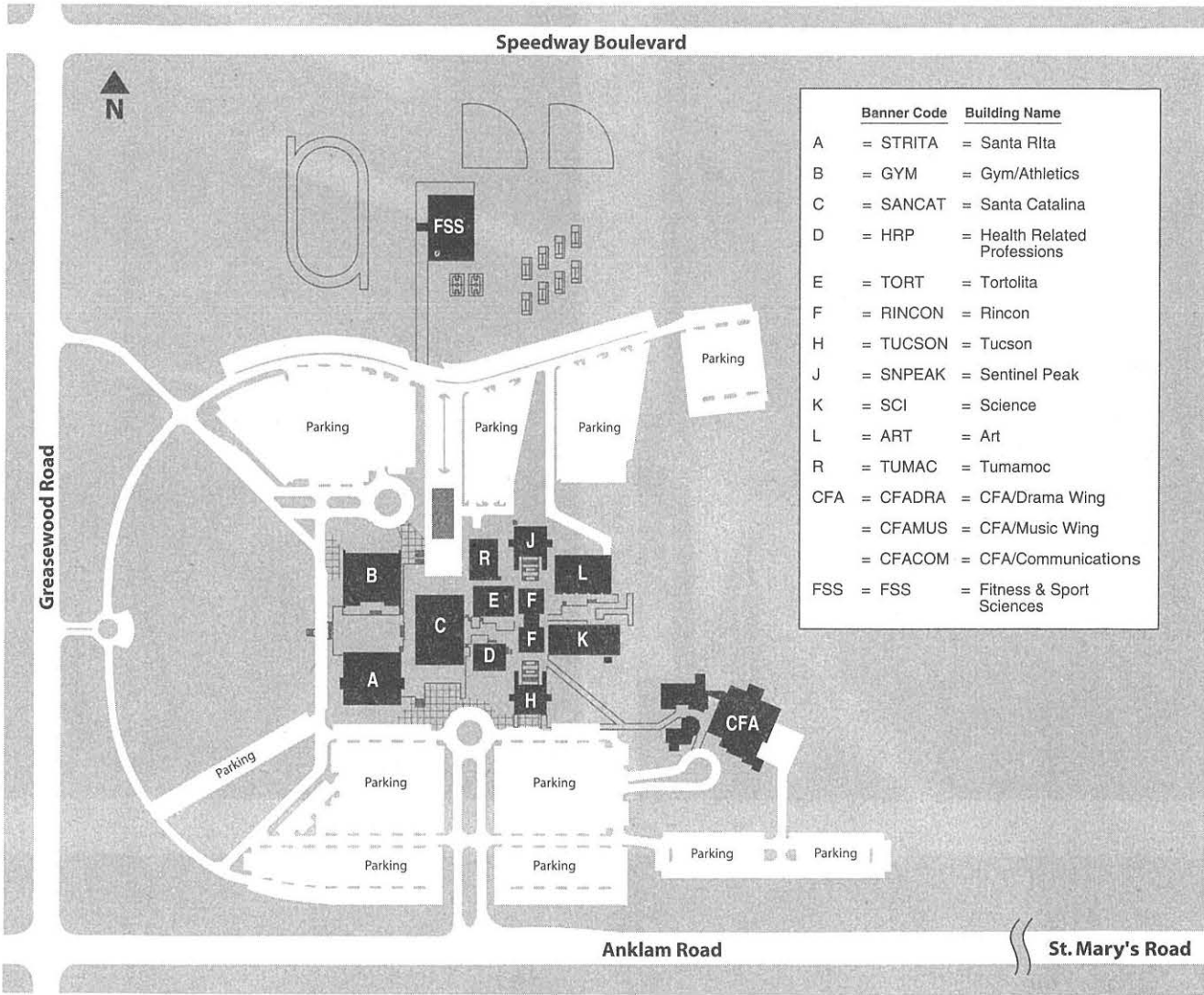
The West Campus enrolls more than 11,000 students each semester. West Campus staff includes 156 faculty, 125 staff and approximately 450 adjunct faculty. The campus is organized around five instructional divisions that offer a wide variety of degree and certificate programs. The West Campus is known for its full range of Health Related Professional programs, comprehensive programs in the natural and physical sciences, an Archaeology Center, a state-of-the-art Digital Arts program, outstanding programs in the visual and performing arts, and the PCC Center for the Arts. The West Campus also serves as home to the College's International Education Program and NJCAA athletic programs.

West Campus students have multiple opportunities to participate in co-curricular activities that include student government, clubs, intercollegiate athletics, and voluntary service.

Designed to blend with the surrounding desert, the campus features inner courtyards and several hiking trails on the grounds.







Banner Code	Building Name
A = STRITA	= Santa Rita
B = GYM	= Gym/Athletics
C = SANCAT	= Santa Catalina
D = HRP	= Health Related Professions
E = TORT	= Tortolita
F = RINCON	= Rincon
H = TUCSON	= Tucson
J = SNPEAK	= Sentinel Peak
K = SCI	= Science
L = ART	= Art
R = TUMAC	= Tumamoc
CFA = CFADRA	= CFA/Drama Wing
= CFAMUS	= CFA/Music Wing
= CFACOM	= CFA/Communications
FSS = FSS	= Fitness & Sport Sciences

**ART**  
Art

**CFA**  
Center for the Arts  
Drama  
Music

**FSSC**  
Aerobic Rooms  
Athletic Fields  
Classrooms  
Faculty Offices  
Fitness and Sport Sciences  
Weight Room

**Gym**  
Dance Floors  
Gymnasium

**HRP**  
Classrooms  
Division Dean, Nursing  
Faculty Offices  
Nursing Skills Lab  
Respiratory Care Lab

**Rincon**  
Biotech Lab  
Classrooms

Faculty Offices  
Histotech/Med Lab Tech Labs  
Lecture Rooms

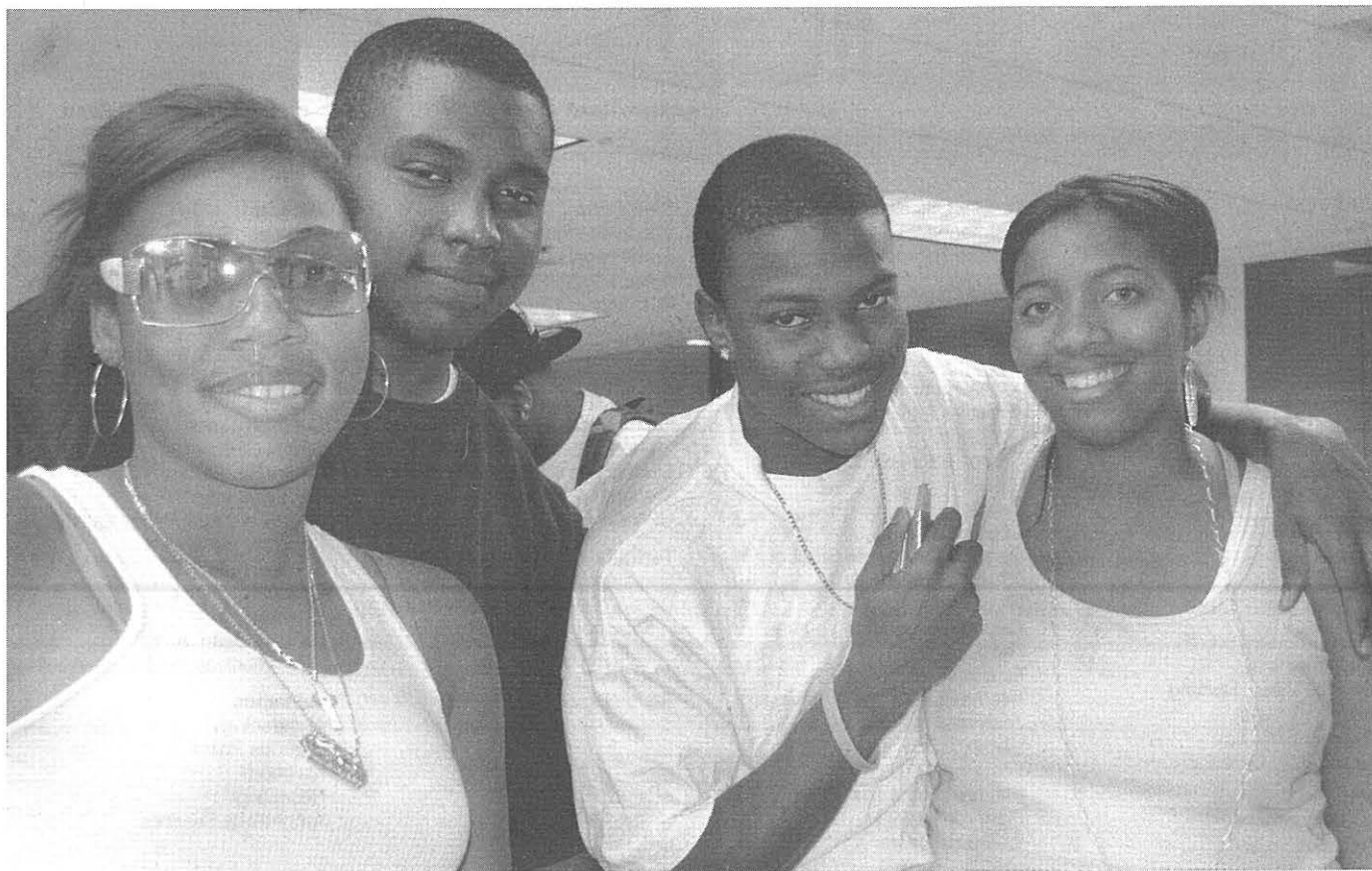
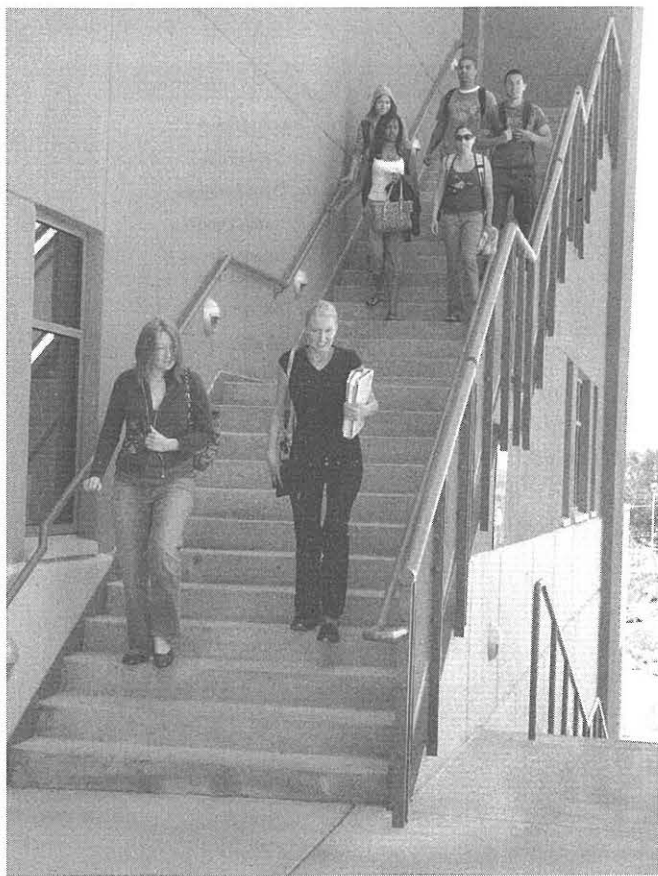
**Santa Catalina**  
Academic Computer Commons  
Admissions/Registration  
Advising and Counseling  
Assessment Testing Center  
Assistive Technology Lab  
Bookstore  
Career/Transfer/Job Placement Center  
Cashier  
Copy Center  
Dean/Division Dean Student Development  
Digital Arts  
Disabled Student Resources  
Faculty Offices  
Financial Aid  
International Student Services  
Journalism  
Library  
Learning Center  
Photography & Film Labs  
Plant Operations  
Welcome Center

**Santa Rita**  
Administration  
Administrative Services  
Aztec Middle College  
Business  
Cafeteria  
Classrooms  
Computer Information Systems  
Faculty Offices  
Faculty Resource Center  
Student Government & Clubs  
Student Life & Educational Outreach  
Student Lounge  
UPH Clinic

**Tortolita**  
Classrooms  
Division Dean, Science, Technology, Engineering & Mathematics  
Faculty Offices  
Geography Lab  
Technology labs

**Tucson**  
Classrooms  
Division Dean, Business, Computers, Languages & Social Sciences  
Division Dean, Health Related Professions  
Engineering & Technology Labs  
Science  
Biology Labs  
Chemistry Labs  
Dental Clinic  
Dental Studies  
Geology Lab  
Radiologic Technology Lab  
Sign Language Lab  
Sentinel Peak  
Childcare Center  
Classrooms  
Division Dean, Arts, Communications & Humanities

**Tumamoc**  
Archaeology  
Campus Police  
Mailroom  
Receiving  
Technology Services



# Admissions, Registration and Records





## Admission to the College

Pima Community College (PCC) has an open-door policy that encourages all individuals to further their educational interests. No person can be denied admission to the College on the basis of sex, race, creed, color, national origin, age, or disability. PCC is open to individuals who meet the following definition for either Regular or Special admissions status. Admission to specific degree (or certificate) programs is not guaranteed. Preference in admission to PCC for all programs may be given to Pima County residents.

Please note that special programs of the College have special admissions. For admissions information to these programs, please contact the offices identified:

Workforce and Business Development Community Campus	206-6569
Center for Training and Development (CTD) Desert Vista Campus	206-5700
Pima Community College Adult Basic Education (PCCAE) Community Campus	206-6500
Truck Driver Training 6680 S. Country Club Rd.	206-2744

### Eligibility for Admission

In accordance with A.R.S. 15-1801 through 15-1807, Pima Community College will admit students if they fall within one of the following categories provided that the established College criteria, guidelines and procedures have been met:

1. a graduate of an accredited high school
2. a recipient of a GED certificate of high school equivalency
3. a transfer student from an accredited college
4. a non-high school graduate who is 18 years of age or older who can benefit from instruction
5. a non-high school graduate between the ages of 16 and 18 who has officially withdrawn from high school who can benefit from instruction
6. a student currently attending high school, age 16 and over, seeking dual enrollment at PCC, accompanied by written approval from the student's principal and parents or legal guardian
7. a student currently enrolled in high school, seeking dual enrollment with PCC, who achieves the specified COMPASS or ASSET scores as per College Dual Enrollment Guidelines, or who presents a composite score of 930 or more on the verbal and math portions of the SAT (Scholastic Aptitude Test) or a composite score of 22 or more on the ACT (American College Test) and written approval from the student's parents or legal guardian
8. a student under the age of 16 without a diploma or GED, seeking dual enrollment at PCC, who has achieved a specified score(s) on the COMPASS or ASSET as per approved College policy or on the SAT, ACT may enroll in up to eight (8) credit hours and with parental/legal guardian approval and the successful completion of the special underage admissions process at the campus the student wishes to attend
9. an international student enrolled for 12 credit hours or more, or a border commuter student enrolled in 6 credit hours or more who has completed an academic program equivalent to an American secondary school and has a score of 450 or better on the Test of English as a Foreign Language (TOEFL), or whose native language is English
10. International students must demonstrate English proficiency using a college approved instrument if they plan to enroll in courses other than English as a Second Language or courses offered bilingually

11. a returning student, **who has not attended PCC within the last three years**, will be required to **re-apply** for admission at any campus or center location prior to new enrollment

Students will be admitted either as full-time (12 credit hours or more) or part-time (less than 12 credit hours) in one of four categories:

1. Regular: A student who is a high school graduate, GED recipient, or who has met the Ability to Benefit criteria and is working toward the completion of a certificate, degree credit, or clock hour courses and/or programs.
2. Special: A student enrolled in courses that do not lead to the completion of a certificate or degree, or a student who is not a high school graduate and/or not beyond the age of compulsory education or not a GED recipient, or who has not met the Ability to Benefit criteria and is enrolling in credit or clock hour courses and/or programs.
3. International: A student who is applying for full-time admission as an F-1 student, or who is attending as an active F-1 student at another institution and has satisfied all accompanying criteria.
4. Foreign: A student who is applying for part-time admission and is in the US on an active visa status, other than F-1.

## Admission of Underage Students

### Guidelines:

No student under the age of sixteen will be denied admission to the College because of age, lack of high school diploma or high school certificate of equivalency, grade in school, lack of permission of school officials, or lack of concurrent enrollment in a public or private school, provided the general parameters have been met to assess student preparedness. Admission to the College does not guarantee admission to a specific degree program or to all courses offered by the College.

The campus Dean of Student Development is responsible for the consistent and uniform implementation of this regulation and related Standard Practice Guides (SPGs). The dean of Student Development or designee is responsible for meeting with the underage student and parents or legal guardian to explain college-wide policies, code of conduct and procedures of special admission of underage students.

### Note:

Students between the ages of 16 and 18 will not be required to complete the special underage admission process, but they are required to demonstrate competency on the Pima Community College assessment and placement tests. In accordance with ARS 15-1805.01, students between the ages of 16 and 18 may be denied admission if the College determines that enrollment at Pima Community College is not in the best interest of the student.

### General Parameters:

1. The College will supplement the education being provided to the underage student by the secondary school system or alternate provider with no more than eight semester hour credits. Underage students being homeschooled may enroll for more than eight semester credit hours with special permission. However, enrollment at PCC is not intended to supplant homeschooling.
2. Students under the age of sixteen without a high school diploma or GED must have completed the SAT (Scholastic Aptitude Test) with a composite score of 930 or more on the verbal and math portions, or the ACT (American College Test) with a composite score of 22 or higher, or have achieved a specified score on COMPASS or ASSET as per approved College policy.
3. For students under the age of sixteen, still in school, the parents or legal guardian must provide a signature granting their permission and permission from the secondary school for supplemental instruction by the College.
4. Students under the age of sixteen must submit copies of all high school academic, attendance, and discipline records for review.

5. The parent(s) or guardian(s) of a student under the age of sixteen who has been in alternative schooling must provide a copy of the state credential or certification for the alternative school, a signature by the certificate holder, and an educational plan indicating the activities the College is asked to supplement.
6. Underage students (under sixteen) and their parent(s)/legal guardian(s) are required to participate in an intake interview at the campus they hope to attend. This special admissions process includes an evaluation of student preparedness, the completion and submission of all required forms and records and an explanation of College policies and procedures. Continued enrollment for underage students granted permission to enroll will be dependent on an evaluation conducted with the student and parent/legal guardian of the satisfactory academic progress and compliance with the Pima Community College Student Code of Conduct.
7. The records of material required for entrance will be kept by the Dean of Student Development and the District Office of Enrollment Services.

The College has the right to deny admission to underage students who fail to meet these guidelines and who have been suspended or otherwise officially excluded from secondary schools for disciplinary reasons. Approval or denial for admission and subsequent registration(s) into courses will be made by the Dean of Student Development.

### Admission of International Students

International students wishing to study as a full-time F-1 student must complete the following procedures in order to be considered for admission to Pima Community College:

1. Submit a completed International Student Application for Admission.
2. Pay a \$25 application fee (payable to Pima Community College).
3. Submit one official copy of:
  - a. High school transcript (or completion of an academic program equal to an American secondary school), indicating graduation date.
  - b. Transcripts of all work done at previous educational institutions translated into English and notarized.
4. Submit official proof of English proficiency as indicated by the Test of English as a Foreign Language (TOEFL) score (minimum 450 on the paper/pencil exam, or 133 on the computer-based version).
5. Submit a certified Affidavit of Financial Support showing the ability to cover expenses for the current academic year.

Once accepted, all international students must comply with the appropriate immigration standards and regulations.

Persons on other non-immigrant visas may be allowed to enroll in part-time course work in accordance with immigration policy.

### Border Commuter Students

In compliance with Immigration and Naturalization Services (INS) regulations, border crossers pursuing a formal course of study at Pima Community College must apply as International Students, be accepted to the College and obtain an F-1 visa. Students may study full or part-time.

Admission for all international students is through the International Student Services office located on the West Campus. For further information, call (520) 206-6732 or visit our Web site at: <http://www.pima.edu>.

## Student Residency Requirements

For tuition purposes, students must indicate their residency status when applying for admission. All questions about legal residency must be determined by the appropriate admissions office before registration and payment of fees for any semester or session. It is the student's responsibility to apply for admission and to register under the correct residency status (domicile determination). Domicile is determined as of the first day of the session in which a student is enrolling. The following guidelines to determine residency status are taken from the Arizona Revised Statutes Sections 15-1801 through 15-1807. For questions about these guidelines, or for help determining residency status, please contact any campus admissions office.

State law now requires that a person who is not a citizen or legal resident of the United States or who is without lawful immigration status is not entitled to classification as an in-state student pursuant to A.R.S. Section 15-1802 or entitled to classification as a county resident pursuant to A.R.S. Section 15-1802.01. According to state law, a person who is not a citizen of the United States, who is without lawful immigration status, and who is enrolled in any community college under the jurisdiction of an Arizona community college district is not entitled to tuition waivers, fee waivers, grants, scholarship assistance, financial aid, tuition assistance or any type of financial assistance that is subsidized or paid in whole or in part with state monies.

### In-State Student Status (Section 15-1802)

1. Except as otherwise provided in this article no person having a domicile elsewhere than in this state is eligible for classification as an in-state student for tuition purposes.
2. A person is not entitled to classification as an in-state student until the person is domiciled in this state for one year, except that a person whose domicile is in this state is entitled to classification as an in-state student if the person meets one of the following requirements:
  - a. The person's parent's domicile is in this state and the parent is entitled to claim the person as an exemption for state and federal tax purposes.
  - b. The person is an employee of an employer which transferred the person to this state for employment purposes or the person is the spouse of such employee.
  - c. The person is an employee of a school district in this state and is under contract to teach on a full-time basis, or is employed as a full-time noncertified classroom aide, at a school within that school district. For purposes of this paragraph, the person is eligible for classification as an in-state student only for courses necessary to complete the requirements for certification by the state board of education to teach in a school district in this state. No member of the person's family is eligible for classification as an in-state student if the person is eligible for classification as an in-state student pursuant to this paragraph.
3. The domicile of an unemancipated person is that of such person's parent.
4. Any unemancipated person who remains in this state when such person's parent, who had been domiciled in this state, removes from this state is entitled to classification as an in-state student until attainment of the degree for which currently enrolled, as long as such person maintains continuous attendance.
5. A person who is a member of the armed forces of the United States and who is stationed in this state pursuant to military orders or who is the spouse or a dependent child as defined in section 43-1001 of a person who is a member of the armed forces of the United States and who is stationed in this state pursuant to military orders is entitled to classification as an in-state student. The student, while in continuous attendance toward the degree for which currently enrolled, does not lose in-state student classification.

6. A person who is a member of the armed forces of the United States or the spouse or a dependent as defined in section 43-1001 of a member of the armed forces of the United States is entitled to classification as an in-state student if the member of the armed forces has claimed this state as the person's state of legal residence for at least twelve consecutive months before the member of the armed forces, spouse or dependent enrolls in a university under the jurisdiction of the Arizona board of regents or a community college under the jurisdiction of a community college district governing board. For purposes of this subsection, the requirement that a person be domiciled in this state for one year before enrollment to qualify for in-state student classification does not apply.
7. A person who is honorably discharged from the armed forces of the United States shall be granted immediate classification as an in-state student on honorable discharge from the armed forces and, while in continuous attendance toward the degree for which currently enrolled, does not lose in-state student classification if the person has met all of the following requirements:
  - a. Declared Arizona as the person's legal residence with the person's branch of service at least one year prior to discharge from the armed forces.
  - b. Demonstrated objective evidence of intent to be a resident of Arizona which, for the purposes of this section, includes at least one of the following:
    1. An Arizona driver license.
    2. Arizona motor vehicle registration.
    3. Employment history in Arizona.
    4. Arizona voter registration.
    5. Transfer of major banking services to Arizona.
    6. Change of permanent address on all pertinent records.
    7. Other materials of whatever kind or source relevant to domicile or residency status.
  - c. Filed an Arizona income tax return with the department of revenue during the previous tax year.
8. A person who is a member of an Indian tribe recognized by the United States department of the interior whose reservation land lies in this state and extends into another state and who is a resident of the reservation is entitled to classification as an in-state student.

## Assignment of Student Identification Number and Use of Social Security Number

Pima Community College assigns all new students a student identification number. PCC does not use Social Security numbers for student identification numbers.

Pima Community College requests the Social Security numbers of all students who are U.S. citizens, Resident Aliens, or non-citizens (who have been issued a Social Security number) on the Application for Admission to match current and future records, ensuring that students receive full credit for all academic work. All local, state and federal student financial aid applications, and forms for College employment require student Social Security numbers.

**Note:** You must provide your Social Security number in order to receive an IRS form 1098-T Tuition Statement (for educational tax credit purposes).

## Before the First Semester

New Student Requirements for Assessment, Advising, and Orientation

### Assessments

The College offers basic skills assessments in reading, writing and mathematics. Assessments are free of charge. Advisors and counselors will use the results to help students choose appropriate courses. Students must be admitted to the College and show a photo ID before testing.

In addition to these basic skills assessments, the College also offers assessments for students taking English as a Second Language (ESL) and placement tests for specific disciplines.

### Requirements

Prior to registering, the following students must take the three basic skills assessments in reading, writing and mathematics:

- New students (first-time attending college); or
- Any student currently enrolled in high school; or
- Any student under the age of 16; or
- Any student registering in a General Education course for the first time; or
- Any student registering for the first time in a reading, writing or mathematics course

**To register in General Education courses, all students must meet one of the following reading requirements:**

- Test higher than REA091 on PCC assessments; or
- Complete REA091 with a grade of "C" or higher; or
- Be concurrently enrolled in REA091 during the first semester of General Education courses; or
- Be concurrently enrolled in REA081 and **one** General Education course

Students registering for English as a Second Language classes must first take the ESL placement test.

### Times

Appointments are not necessary, but please allow three hours to complete all assessments.

### Special Accommodations

Special accommodations for qualified disabled students, such as extended time, large print, writing assistants, and interpreters, are available through the Disabled Student Resources offices. For more information, please refer to the Disabled Student Resources section.

### Preparation

To prepare for the basic skills assessments in reading, writing and mathematics, a sample test is available for a small charge at any campus bookstore, for review at any campus library, or on the Web site at: <http://www.pima.edu>

### Other Testing Services

For students without a high school diploma, PCC offers the GED (General Education Development) test. This test is available at the West Campus Assessment Center and at Pima Community College Adult Education Centers (PCCAE). Additionally, the institutional TOEFL (Test of English as a Second Language) is available at the West Campus Assessment Center.

### Advising

Advisors and counselors are available throughout the year to help students decide on an educational goal and to prepare an educational plan to meet that goal.



## Requirements

Prior to registering, the following students **must** be advised by a College advisor or counselor:

- New students (first-time attending college); or
- New students completing a degree or certificate; or
- Any student currently enrolled in high school; or
- Any student under the age of 16; or
- Any student registering in a General Education course for the first time; or
- Any student registering for the first time in a reading, writing or mathematics course

## Advising Resources for Students

All students are urged to make use of the College Catalog, Schedule of Classes, and the Student Handbook when selecting courses or developing an educational plan. These publications are available at all Advising and Counseling Centers or at [www.pima.edu](http://www.pima.edu). Catalogs may be purchased for a small fee at any campus bookstore or by calling (520) 206-4500.

## Exceptions to Assessment, Orientation and Advising Requirements

Students who **do not** need to take assessments are:

- Students who have earned a degree or certificate; or
- Students who can document competencies in reading, writing or mathematics through prior assessment or college-level coursework; or
- Students enrolled only in non-credit, contract or special interest courses

Note: Previous assessment scores, or college-level coursework must be provided to an advisor or counselor prior to registration.

Students who **do not** need to participate in advising and orientation are:

- Students who have earned a degree or certificate; or
- Part-time students dually enrolled in another institution of higher education; or
- Part-time students enrolling in personal development, special interest, business/industry contract or customized courses; or
- Part-time students who are non-degree seeking

## Orientation

Orientation is designed to help students succeed in college. Orientation covers necessary information about programs, services, university transfer, study skills, and registration. Each campus provides an orientation schedule for the upcoming semester. Orientations are offered at a variety of times, dates, and formats. Call any Advising and Counseling Center for more information.

## Requirement

Prior to registering, any student new to higher education **must** complete an orientation. Meet with an advisor or counselor to see which of the following options is appropriate for you:

- Orientation and Registration Workshops; or
- Credit courses offered prior to or during each semester; or
- Online Orientation tutorial; or
- Orientation video

## How to Schedule an Orientation

Complete an Application for Admission, take the assessments, and call or visit an Advising and Counseling Center to schedule an orientation.

## Declaring a Program of Study

Students must declare a program of study (major) when applying for admission and make sure that it is listed correctly on their records. Advisors and counselors are available at all campus locations to help choose the right program of study. The program of study can affect financial aid or veterans benefits. Students may change or update their program of study at any campus admissions office.

## Transfer of Credits into PCC

Students who have taken classes at another college or university may transfer the credits to Pima Community College. The College may accept class credit (with a grade of C, its equal, or better) from colleges and schools accredited by any of the following regional accreditation commissions:

- Middle States Association of Colleges and Schools
- New England Association of Schools and Colleges, Inc.
- North Central Association of Colleges and Schools
- Northwest Association of Schools, Colleges and Universities
- Southern Association of Colleges and Schools
- Western Association of Schools and Colleges

To transfer credits to Pima Community College, the student must:

- Request an official transcript from the institution(s) previously attended to be sent directly to the District Admissions Office at 4905B E. Broadway, Suite 220, Tucson, AZ 85709-1120. The student will be notified when the transcript has been received.
- Submit a written request for evaluation of the credits at any campus location. Students must be admitted to the College in order to request evaluation of transfer credits.
- Requests for transcript evaluation should be submitted during the first semester of enrollment.

## Military Servicemembers Opportunity College

Pima Community College has been named as an institutional member of Servicemembers Opportunity Colleges (SOC). The SOC is a group of over 400 college and universities that willingly provide postsecondary (after high school) education to members of the military throughout the world. As a member of the SOC, the College recognizes the unique nature of the military lifestyle. Pima Community College is committed to making it easier to transfer relevant course credits and has flexible requirements when deciding residency for members of the military. For information about the Department of Veterans Affairs (DVA) educational assistance, please see the Financial Assistance section.

## Credit by Examination

Pima Community College realizes that when students enter the College, they may have already gained the knowledge and/or mastered the content of certain courses. Therefore, students have the opportunity to earn college credit by assessment of prior learning. Students receive credit by passing examinations.

Please note that a student cannot receive credit by examination for a course that is lower than the one in which s/he is currently enrolled or for one in which s/he has already received credit. Credit by examination may or may not transfer to other colleges or universities. In addition, credit by examination does not fulfill the requirement of completing 15 credits at PCC. It also cannot be used in qualifying a student for veterans benefits. Students cannot receive financial assistance for credit by examination.

Credit by examination shall include:

1. Advanced Placement (AP) and International Baccalaureate (IB) Programs.
2. College-Level Examination Program (CLEP)
3. Special examination for credit

# **Advanced Placement (AP) and International Baccalaureate (IB) Programs**

Pima Community College accepts Advanced Placement (AP) and International Baccalaureate Diploma (IB) credits. Taking Advanced Placement or International Baccalaureate courses in high school can accelerate a student's college career. At PCC, students can earn up to 30 credits towards a degree simply by taking examinations at the end of AP or IB classes. Credits earned based on exam performance may be counted toward a certificate or degree, including General Education requirements. See the following AP and IB credit tables. Contact a Pima Community College advisor to confirm course credit towards specific programs.

Advanced Placement classes are offered in select high schools. Exams are administered through the College Board each May. Some students take AP exams after taking honors or accelerated courses in their schools. For more information about the AP program visit the College Board Web site (<http://www.collegeboard.com>).

The International Baccalaureate Diploma Program is also offered in select high schools. This rigorous 2-year course of pre-university studies leads to exams that can be used to qualify for college credit. Pima Community College accepts certain higher-level IB exams for credit, see the following IB table. For more information about the IB Program visit the main Web site IB Diploma Programme (<http://www.ibo.org/ibo>).

AP and/or IB credit is re-evaluated upon transfer to another institution. For students planning to transfer AP and/or IB credit, please consult the catalog of the institution to which you plan to transfer for how the institution accepts AP and/or IB credit. An effort has been made to match Pima Community College's AP and IB scores with the University of Arizona's AP and IB scores.

AP and IB credit may fulfill Arizona General Education (AGEC) credit and/or Occupational General Education credit if the AP and IB score results in credit given in a course in the general education list. For example, a score of 4 or 5 on the American History Advanced Placement Exam results in credits for HIS 141 and 142 which fulfills AGEC and Occupational General Education requirements.

Passing scores for subjects credited through the AP and IB Exams are recorded as a "P" grade and will not be stated in terms of a specific course grade. No record is made of failing scores.

Please refer to the following table for the required scores for General Education application or Course Credit awarded. These scores are reviewed annually by the College Curriculum Office and by the respective College Discipline Area Committees.

## **Advanced Placement (AP) Table**

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>American History</b>	4 or 5	Social and Behavioral Sciences	HIS 141 & 142	6
<b>Art History</b>	3, 4 or 5	Humanities and Fine Arts—Humanities	ART 130 & 131	6
<b>Art: Studio Art—Drawing</b>	3, 4 or 5	Humanities and Fine Arts—Art	ART 110	3
<b>Art: Studio Art—2D</b>	3, 4 or 5	Humanities and Fine Arts—Art	ART 115	3
<b>Art: Studio Art—3D</b>	3, 4 or 5	Humanities and Fine Arts—Art	ART 120	3

## **Advanced Placement (AP) Table (continued)**

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Biology</b>	4 or 5	Biological and Physical Sciences	BIO 181IN & 182IN	8
	3	Biological and Physical Sciences	BIO 100	4
<b>Chemistry</b>	4 or 5	Biological and Physical Sciences	CHM 151IN & 152IN10	
	3	Biological and Physical Sciences	CHM 151IN	5
<b>Calculus</b>				
A/B exam	3, 4 or 5	Mathematics	MAT 220	5
B/C exam	4 or 5	Mathematics	MAT 220 & 230	9
B/C exam	3	Mathematics	MAT 220	5
<b>Computer Science</b>				
A exam	3, 4 or 5	None	CIS 131	5
A/B exam	4 or 5	None	CIS 131 & 231	9
A/B exam	3	None	CIS 131	5
<b>Economics</b>				
Micro-economics	4 or 5	Social and Behavioral Sciences	ECN 201	3
Macro-economics	4 or 5	Social and Behavioral Sciences	ECN 202	3
Micro-Macro	4 or 5	Social and Behavioral Sciences	ECN 200	3
<b>English Literature/Composition</b>	4 or 5	3 credits of English Composition	WRT 101	3
<b>Language/Composition</b>	4 or 5	3 credits of English Composition	WRT 101	3
<b>Environmental Science</b>	4 or 5	Biological and Physical Sciences	ENV 105 & 105LB	4
<b>European History</b>	4 or 5	Social and Behavioral Sciences	HIS 101 & 102	6
<b>French Language</b>	5	Other Requirements—Second Language	FRE 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	FRE 101, 102 & 201	12
	3	Other Requirements—Second Language	FRE 101 & 102	8
	2	Other Requirements—Second Language	FRE 101	4

**Advanced Placement (AP) Table (continued)**

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit	Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>French Literature</b>					<b>Political Science</b>				
	5	Other Requirements—Second Language	FRE 101, 102, 201 & 202	16	American Government & Politics	4 or 5	Social and Behavioral Sciences	POS 201	3
	4	Other Requirements—Second Language	FRE 101, 102 & 201	12	Comparative Government & Politics	4 or 5	Social and Behavioral Sciences	POS 204	3
	3	Other Requirements—Second Language	FRE 101 & 102	8					
	2	Other Requirements—Second Language	FRE 101	4					
<b>German</b>					<b>Psychology</b>				
	5	Other Requirements—Second Language	GER 101, 102, 201 & 202	16		4 or 5	Social and Behavioral Sciences	PSY 101	4
	4	Other Requirements—Second Language	GER 101, 102 & 201	12					
	3	Other Requirements—Second Language	GER 101 & 102	8					
	2	Other Requirements—Second Language	GER 101	4					
<b>Latin- Virgil</b>					<b>Spanish Language</b>				
	5	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16		5	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	4	Other Requirements—Second Language	LAT 101, 102 & 201	12		4	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	3	Other Requirements—Second Language	LAT 101 & 102	8		3	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
	2	Other Requirements—Second Language	LAT 101	4		2	Other Requirements—Second Language	SPA 101 & 102	8
<b>Latin- Literature</b>					<b>Spanish Language &amp; Literature</b>				
	5	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16		5	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	4	Other Requirements—Second Language	LAT 101, 102, & 201	12		4	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	3	Other Requirements—Second Language	LAT 101 & 102	8		3	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
	2	Other Requirements—Second Language	LAT 101	4		2	Other Requirements—Second Language	SPA 101 & 102	8
<b>Music Literature</b>					<b>Spanish Literature</b>				
	5	Humanities and Fine Arts—Humanities	MUS 201 & 202	6		5	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	4	Humanities and Fine Arts—Humanities	MUS 201	3		4	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	3	Humanities and Fine Arts—Humanities	MUS 151	3		3	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
<b>Music Theory</b>						2	Other Requirements—Second Language	SPA 101 & 102	8
	5	Humanities and Fine Arts—Art List	MUS 125 & 127	5					
	3 or 4	Humanities and Fine Arts—Art List	MUS 125	3					
	2	Humanities and Fine Arts—Art List	MUS 102	3					
<b>Physics B</b>					<b>Statistics</b>				
	3, 4 or 5	Biological and Physical Sciences	PHY 121/121LB & 122/122LB	10		3, 4 or 5	Mathematics	MAT 167	3
<b>Physics CE</b>					<b>World History</b>				
	4 or 5	Biological and Physical Sciences	PHY 216/216LB	5		5	Humanities and Fine Arts—Humanities	HIS 101	3
<b>Physics CM</b>									
	4 or 5	Biological and Physical Sciences	PHY 210/210LB	5					



# International Baccalaureate Diploma Programme (IB)

Pima Community College accepts International Baccalaureate (IB) credit. The International Baccalaureate Diploma Programme is offered in select high schools. This rigorous 2-year course of pre-college studies leads to exams which can be used to qualify for college credit. IB credit is considered credit by examination. Credits earned based on exam performance may be counted toward major or minor fields of study, or General Education requirements. See the IB table below and contact an academic advisor to confirm course credit towards specific programs.

## International Baccalaureate (IB) Table

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Biology</b>	5	Biological and Physical Sciences	BIO 181IN & 182IN	8
	4	Biological and Physical Sciences	BIO 181IN	4
<b>Chemistry</b>	5	Biological and Physical Sciences	CHM 151IN, 152IN	10
	4	Biological and Physical Sciences	CHM 151IN	5
<b>Computer Science</b>	5, 6 or 7	Other Requirements—(b)Computer Science, Critical Thinking, Logic, Mathematics or Science	CIS 131	5
<b>Economics</b>	5	Social and Behavioral Sciences	ECN 200	3
<b>English</b>	5,6 or 7	English Composition	WRT 101	3
<b>French</b>	7	Other Requirements—Second Language	FRE 101,102, 201 & 202	16
	6	Other Requirements—Second Language	FRE 101,102 & 201	12
	5	Other Requirements—Second Language	FRE 101 & 102	8
<b>Geography</b>	5,6 or 7	Biological and Physical Sciences	GEO 101	4
<b>German</b>	6	Other Requirements—Second Language	GER 101, 102, 201 & 202	16
	5	Other Requirements—Second Language	GER 101, 102 & 201	12
	4	Other Requirements—Second Language	GER 101 & 102	8
<b>History</b>	5,6 or 7	Humanities and Fine Arts—Humanities	HIS 101 & 102	6
<b>Latin</b>	6 or 7	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16
	5	Other Requirements—Second Language	LAT 101, 102, & 201	12
	4	Other Requirements—Second Language	LAT 101 & 102	8
<b>Mathematics</b>	5	Mathematics (except AGEC-B and AGEC-S)	MAT 151	4
<b>Music</b>	5	Humanities and Fine Arts—Humanities	MUS 201 & 202	6

## International Baccalaureate (IB) Table (continued)

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Physics</b>	5	Biological and Physical Sciences	PHY 210, 216, 221 & 230	14
<b>Psychology</b>	5	Social and Behavioral Sciences	PSY 101	4
<b>Spanish</b>	5	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	SPA 101 & 102	8

## College-Level Examination Program (CLEP)

The College-level Examination Program is a means by which students can obtain college credits without having to enroll formally in the courses. Pima Community College accepts CLEP for college credit, providing satisfactory scores are attained. Students must pay a registration service fee and an examination fee for each test. CLEP examinations are offered at the University of Arizona Testing Office (520-621-7589). PCC's Northwest Campus (520-206-2200) and the Davis-Monthan Air Force Base Education Center (520-206-4866) also offer CLEP examinations. Contact these offices to obtain information on the specific examinations offered.

CLEP credit is re-evaluated upon transfer to another institution. Students planning to transfer CLEP credit should consult the catalog of the institution to which they plan to transfer as to how the institution accepts CLEP credit. An effort has been made to match Pima Community College's CLEP scores with the University of Arizona's CLEP scores.

CLEP credit may fulfill Arizona General Education (AGEC) credit and/or Occupational General Education credit if the CLEP score results in credit given in a course in the General Education list. For example, a score of 50 on the Western Civilization II: 1648 to Present test results in HIS 102 credit that will fulfill AGEC and Occupational General Education requirements.

Passing scores for subjects credited through the CLEP are recorded with a "P" grade and will not be stated in terms of a specific course grade. No record is made of failing scores.

Please refer to the following table for the required scores for General Education application or Course Credit awarded. These scores are reviewed annually by the College Curriculum Office and by the respective College Discipline Area Committees.

## CLEP

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>CLEP Subject Exams</b>				
<b>American Government</b>	50	Social and Behavioral Science General Education requirements	POS 201	3
<b>American Literature</b>	55	Humanities and Fine Arts/Historical Perspective General Education requirements	LIT 265	3
<b>Analyzing &amp; Interpreting Literature</b>	50	None	LIT 261	3

## CLEP

## Subject Exams (continued)

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Calculus with Elementary Functions</b>	50	Math General Education requirement for all AGECS	MAT 220	5
<b>College Algebra</b>	50	Math General Education requirement for AGECS-A	MAT 151	4
<b>College-Level French Language</b>	(a)66	Requirements—Second Language General Education requirements	(a)FRE 101, 102, 201 & 202	(a)16
	(b)62		(b)FRE 101, 102 & 201	(b)12
	(c)55		(c)FRE 101 & 102	(c)8
	(d)50		(d)FRE 101	(d)4
<b>College-Level German Language</b>	(a)60	Satisfies Other Requirements—Second Language General Education requirements	(a)GER 101, 102, 201 & 202	(a)16
	(b)51		(b)GER 101, 102 & 201	(b)12
	(c)46		(c)GER 101 & 102	(c)8
	(d)39		(d)GER 101	(d)4
<b>College-Level Spanish Language</b>	(a)68	Satisfies Other Requirements—Second Language General Education requirements	(a)SPA 101, 102, 201 & 202	(a)16
	(b)66		(b)SPA 101, 102 & 201	(b)12
	(c)55		(c)SPA 101 & 102	(b)8
	(d)50		(d)SPA 101	(b)4
<b>English Literature</b>	55	Fulfills 3 credits of Humanities and Fine Arts/Historical Perspective General Education requirements	LIT 260	3
<b>Financial Accounting</b>	60	None	ACC 101	3
<b>Freshman College Composition</b>	60	Satisfies English Composition General Education requirement	WRT 101 & 102	6

## Subject Exams (continued)

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>General Biology</b>	50	Satisfies Biological and Physical Science General Education requirements	BIO 100 and 4 credits of ZTRBP	8
<b>General Chemistry</b>	50	Satisfies Biological and Physical Science General Education requirements	CHM 151IN & 152IN	10
<b>History of the United States I: Early Colonization to 1877</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 141	3
<b>History of the United States II: 1865 to Present:</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 142	3
<b>Human Growth &amp; Development</b>	50	None	ECE 106	3
<b>Information Systems and Computer Applications</b>	50	None	CIS 000, departmental elective credit	3
<b>Introduction to Educational Psychology</b>	50	None	ECE 000, departmental elective credit	3
<b>Introductory Business Law</b>	50	None	BUS 000, departmental elective credit	3
<b>Introductory Psychology</b>	54	Fulfills 3 credits of Social and Behavioral Science General Education requirements	PSY 101	4
<b>Introductory Sociology</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements	SOC 101	3

**CLEP****Subject Exams (continued)**

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Principles of Macro-Economics</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements	ECN 202	3
<b>Principles of Management</b>	50	None	MGT 110	3
<b>Principles of Marketing</b>	50	None	MKT 111	3
<b>Principles of Micro-Economics</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements	ECN 201	3
<b>Social Sciences and History</b>	50	None	Elective Credit	6
<b>Western Civilization I: Ancient Near East to 1648</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 101	3
<b>Western Civilization II: 1648 to the Present</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 102	3

**Special Examination for Credit – Proficiency Exam**

A proficiency exam allows the student to take an examination for credit in a course where a student believes he/she has gained the same knowledge through some other experience (e.g., native language speaker or job experience). Proficiency exams are offered under limited circumstances at the instructor's discretion. Contact the instructor for permission to take a proficiency exam before registering for the course. A student must register and pay for the course before completing the exam. The instructor usually will require the successful completion of the course's final exam, which may have a written and/or oral component. Proficiency exams are not offered for fourth semester language classes.

**DANTES CLEP and DSST**

DANTES (Defense Activity for Non-Traditional Education Support) offers two forms of standardized assessment: DANTES CLEP and DANTES DSST (DANTES Subject Standardized Tests). DANTES CLEP is the same as CLEP and, utilizing the CLEP scores and equivalencies identified in the CLEP section of this catalog, may be applied to any certificate or degree. DANTES DSSTs are subject-matter examinations in college and technical subjects. At this time, the College does not accept DANTES DSST examinations as equivalent to College courses.

## Enrolling in Classes

Each semester the College publishes a *Schedule of Classes* that has a list of classes offered, with the dates, times, and locations of each course section. The schedule also provides instructions on when and how to register, information on financial aid, advising, student resources, and important dates and deadlines for the upcoming semester or sessions.

There are three ways to register for classes after students have been admitted, assessed and advised:

- Banner online registration
- Automated touch-tone telephone registration system (MAX 2000)
- Walk-in registration at all campus and district admissions offices

Students can audit most credit class with the instructor's permission. Auditing a class means that you enroll, pay for, attend and do work for the class but do not receive credit or a grade. Audit registration must be conducted in person at any campus or district admissions office between the first day of class and the drop/refund date of the class. After registering for an audit course any and all changes to the student's schedule must be made in person.

Student enrollment is not official for any academic term until all tuition and fees are paid.

Returning students, **who have not attended PCC within the last three years**, will be required to **re-apply** for admission at any campus or center location prior to new enrollment.

For more information:

- See the PCC Website at <http://www.pima.edu>
- See the *Schedule of Classes*
- Contact any campus admissions office or the general information line (206-4500)

## Maximum Credit Hours Per Semester

Students can enroll in a maximum of 18 credit hours in the fall and spring semesters and 12 credit hours in the summer sessions. These credit limits include resident work; registration with the University of Arizona; and extension, correspondence, or high school classes taken at the same time. Enrollment beyond these limits requires approval. For more information, please contact any campus advising and counseling center.

## Course Prerequisites

Students must meet course prerequisites as stated in this catalog, or demonstrate to the instructor their ability to take the class. If the student does not have the proper prerequisite(s) for the class, the instructor can withdraw the student from that class after notification.

## Important Student Information

### Student Rights and Responsibilities

All PCC students are considered to be responsible individuals – and are accountable for their own behavior. The College expects all students to obey local, state and federal laws, and to follow the College's Standards of Conduct. Those standards, as well as the student complaint process, can be found in the *Student Rights and Responsibilities* booklet. Copies are available at any campus library, advising and counseling center, Dean of Student Development office, or Dean of Instruction office. An overview is available in the current *Student Handbook*, or online at <http://www.pima.edu/studentserv/studentrights/>



## If You Have a Problem . . .

Students with general complaints should see either the campus Dean of Instruction or the campus Dean of Student Development for guidance in resolving problems. The *Student Handbook* and the *Student Rights and Responsibilities* booklet outline procedures for appealing grades or code of conduct penalties.

## Religious Observances

Pima Community College accommodates the religious observances and practices of students unless it will result in undue hardship to College programs. Arrangements should be made with the instructor at least two weeks in advance.

## Family Educational Rights and Privacy Act (FERPA)

Students are informed each year of the Family Educational Rights and Privacy Act of 1974. The act was designed to protect the privacy of educational records, to establish the right of students to inspect and review their education records, and to provide guidelines for the correction of inaccurate or misleading data. Students have the right to file complaints with the Family Educational Rights and Privacy Act Office about alleged failures by the College to follow the rules of the act.

For more information about the Family Educational Rights and Privacy Act, please contact any campus admissions and records office.

## Information Covered under the Act

Student information is divided into two categories, public and student directory (unpublished), which can be disclosed by the College for any purpose at its discretion.

Public and student directory information may include the student's name, address, telephone number, date of birth, program of study, course status (freshman, sophomore, full-time, part-time), participation in college activities and sports, weight and height of members of athletic teams, dates of attendance, degrees, honors, awards received, and previous schools attended by the student.

Currently enrolled students can instruct the College not to disclose public or directory information for any purpose under the Family Educational Rights and Privacy Act of 1974. A form to request withholding is published in the fall, spring, and summer editions of the *Schedule of Classes*. The withholding form must be sent to the Admissions and Records Office before the drop/add deadline for each semester. Pima Community College assumes that any student who does not request the withholding of public or directory information gives consent for disclosure.

## Third Party Transactions

Students who wish to have a parent, spouse or friend or other third party complete any transactions, such as registration, which affect their educational record must provide the third party with: a.) the student's photo ID, and b.) a statement describing the transaction and granting the third party permission from the student. The student must sign and date the statement.

## Academic Reporting

Throughout the United States, colleges and universities monitor the progress students make in achieving their academic goals. PCC is pleased to provide information regarding our institution's graduation/completion and transfer rates, in compliance with the Higher Education Act of 1965, as amended. Student success information, including information about student athletes, is available online at [www.pima.edu](http://www.pima.edu), or call 206-4500 for a brochure.

# Academic Policies: Grades, Academic Progress and Student Classification

## Grading Policies

Grades at Pima Community College are recorded at the end of each session according to the following system:

- A – Superior = 4 grade points per credit hour
- B – Above Average = 3 grade points per credit hour
- C – Average = 2 grade points per credit hour
- D – Below Average = 1 grade point per credit hour
- F – Failure = 0 grade point per credit hour
- P – Pass = C or better without grade differentiation ordinarily indicated by the College grading system. A 'D' grade may be given at the student's request and the instructor's option.
- I – Incomplete: A record of Incomplete as a grade will be made at the student's request and the instructor's option. A student receiving a grade of 'I' will be provided with a standard form specifying the work necessary for completion of the course. After the student completes the work, or after the 'I' deadline set by the instructor, the instructor submits a Change of Grade form to the Admissions Office. If no Change of Grade form is submitted within a year, the 'I' will be automatically changed to 'F.'
- IP – Work in progress in open entry/open exit course. A record of IP (in progress) as a grade will be made when a student is making satisfactory progress in a course that crosses sections in start and end dates. At the specified end date of the course, the student will be assigned a grade of 'A,' 'B,' 'C,' 'D,' 'F,' 'I,' 'P,' or 'W.'
- W – Official Withdrawal: This grade may be requested by the student during the first two-thirds of any session. This grade may also be given at the direction of the instructor on or before the final grading date for the class to students who have ceased attending.
- X – An X placed next to the grade indicates the grade was earned through the successful completion of a proficiency test.
- AU – Audit: To audit a class means to enroll in and to attend a class without working for or expecting to receive credit. The symbol for audit, AU, appears on the class enrollment list by the student's name. Students auditing a class must register by the end of the official refund period and must receive the written permission of the instructor. Courses audited after fall 2003 will not appear on your transcript.

## Grade Point Average (GPA) Calculation

The GPA is figured by multiplying the number of credit hours for each class by the number of points for the grade given and dividing the sum of the points by the total number of credit hours of A, B, C, D, and F grades. The GPA is based only on work completed at Pima Community College. A complete record of all credit courses attempted at the College is kept for each student.

### Grade Reports

Grade mailers are no longer sent to a student's home address. Use MyPima, PCC's web-based information system, or MAX 2000, the telephone registration system, to access your grades.

### Appeal of Grades

There is an appeal process for grade challenges. Please refer to the Student Rights and Responsibilities section of the *Student Handbook* that is available at any campus advising and counseling center, library, Dean of Student Development or Dean of Instruction office.

### Course Repeat Grades

The higher of two grades earned for the same class will be used to figure the GPA. Both courses will appear on the student's transcript.

## Academic Standards of Progress

This section covers:

- Good Academic Standing
- Official Withdrawal Guidelines
- Academic Alert
- Academic Disqualification
- Appeal of Academic Disqualification
- Academic Reinstatement
- Academic Renewal

### Good Academic Standing

The following criteria will be applied to determine good academic standing at PCC. All students will be in good academic standing if their cumulative grade point average (GPA) meets or exceeds the standards listed below.

Credits Completed	Minimum Cumulative Grade Point Average (GPA)
0 - 3	1.0
4 - 9	1.2
10 - 14	1.3
15 - 24	1.5
25 - 48	1.75
49 or more	2.0

Credit hours completed include those credits earned at PCC with a grade of A, B, C, D, F, or P.

### Official Withdrawal Guidelines

Students can request a grade of W (official withdrawal) only during the first two-thirds of the class based on the beginning and ending dates as listed in the *Schedule of Classes*. For open entry/open exit classes, the two-thirds deadline is based on the days between the date of the student's registration and the last day of the semester or session. For classes of two or less days, the instructor must approve the W grade if it is requested after the class begins. Instructors can only give a W grade on or before the first two-thirds of a class to students who have stopped attending the class before that deadline.

### Academic Alert

Students will be placed on academic alert when:

- The student's cumulative grade point average (GPA) does not meet the minimum standards for good academic standing.
- The student has appealed and been reinstated after having been placed on academic disqualification.

The academic alert system:

- Informs students of academic status.
- Allows students one semester to raise their GPA to the minimum required for good academic standing.
- Advises students of available College resources that may help improve their academic performance.

### Academic Disqualification

Students on academic alert will be academically disqualified if they have not raised their cumulative GPA to the required minimum after the academic alert semester. (Exception: If the student earns a 2.0 GPA or higher for the current semester s/he will be permitted to continue on academic alert status.)

Students who have been academically disqualified will not be permitted to enroll until they have been reinstated through the College appeal process. Specific appeal procedures are outlined in the letter that is given to all students who are disqualified.

### Appeal of Academic Disqualification

Students who have been academically disqualified must follow the College appeal procedures for reinstatement. Students who feel that unusual conditions contributed to their unsatisfactory academic progress can request immediate reinstatement. For more information on appeal procedures, please refer to the Student Rights and Responsibilities section of the *Student Handbook*.

### Academic Reinstatement

Students who have been academically disqualified can appeal by following the appeal procedures for reinstatement. For more information on appeal procedures, please refer to the Student Rights and Responsibilities section of the *Student Handbook*. After reinstatement the student will be placed on academic alert status.

### Academic Renewal

Past academic performance may not, for a variety of reasons, be reflective of a student's subsequent demonstrated ability. Currently enrolled students who meet the criteria can have up to three consecutive terms of course work ignored in computing their academic standing, grade-point average, and eligibility for degree or certificate completion. Academic Renewal may be given only once and will apply to the entire term, not just one class. Since the student's complete record (before and after Academic Renewal) remains on the transcript, other institutions may consider all classes when a student transfers or applies to a professional or graduate-level program.

For more information, please see any campus Advising and Counseling Center.

## Student Classification and Standing

Pima Community College students will be classified using the following criteria:

### Full-Time Student

Students enrolled for 12 or more credit hours for the fall or spring semester, 6 or more credit hours for a ten-week summer session, or 4 or more credit hours for a five-week summer session will be classified as full-time students.

**Note:** For financial aid or veterans benefits purposes, summer session students must enroll for a total of 12 hours in one or any combination of the established summer sessions to be considered full-time students.

### Part-Time Student

Students enrolled for 1 to 11 credit hours during the fall or spring semester, 5 or fewer credit hours for a ten-week summer session, or 3 or fewer credit hours for a five-week summer session will be classified as part-time students.

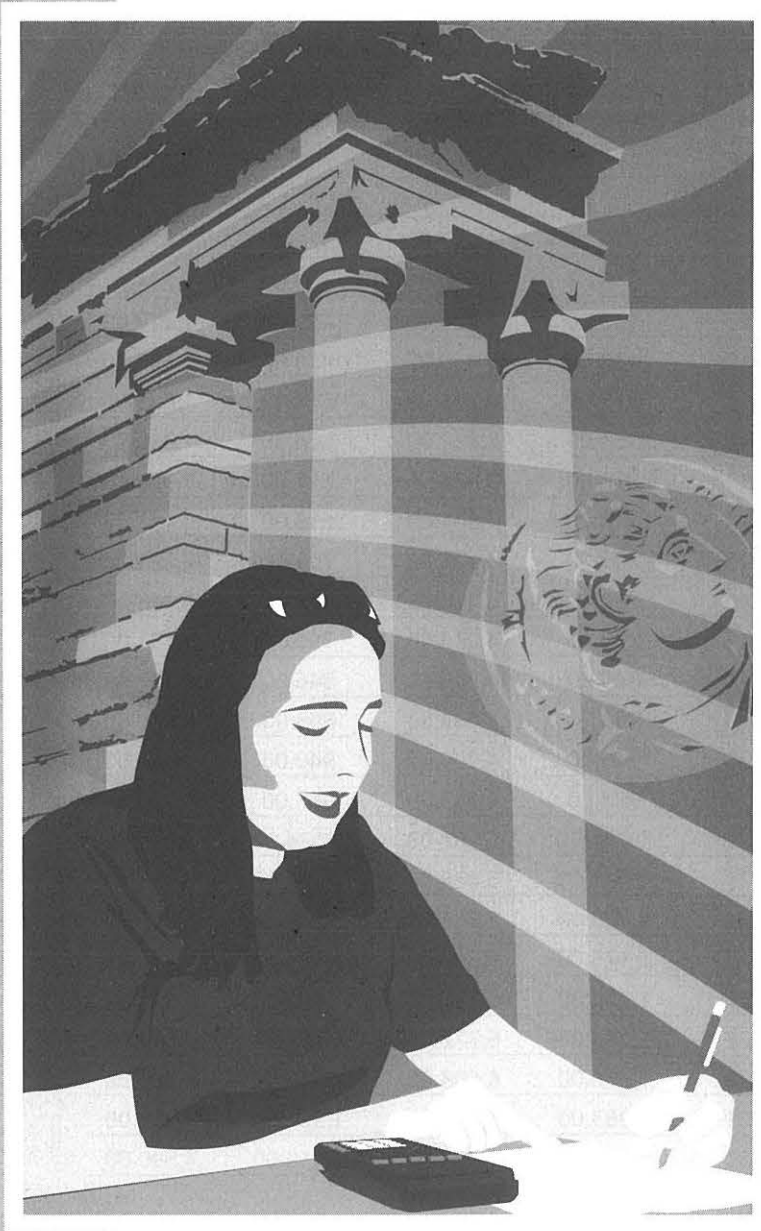
### Freshman

Students who have earned fewer than 28 semester hours of credit will be considered freshmen.

### Sophomore

Students who have earned 28 or more semester hours of credit will be considered sophomores.

# Costs and Payments





## Tuition and Fees

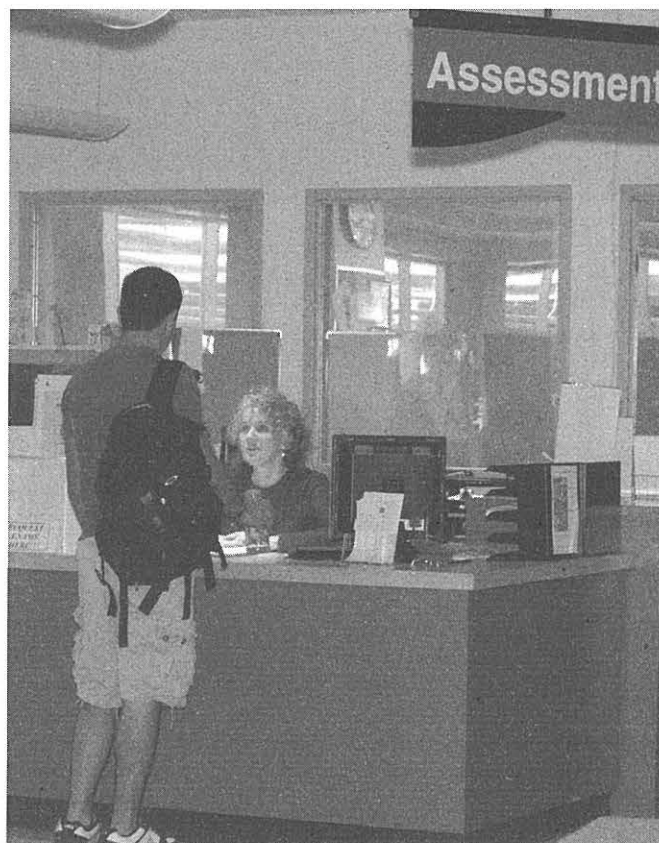
The following information reflects the College's tuition, fee, and refund policies for the Fall 2007, Spring 2008 and Summer 2008 (all sessions) semesters. **Tuition, fees, and refunds are subject to change without notice. Please refer to a current *Schedule of Classes* for the most up to date information.**

### Tuition – All Terms

Credit Hours	Fall and Spring Tuition		Summer Tuition	
	In-State Residents	Non-Residents	In-State Residents	Non-Residents
1	\$47.00	\$80.00	\$47.00	\$153.00
2	94.00	160.00	94.00	306.00
3	141.00	240.00	141.00	459.00
4	188.00	320.00	188.00	612.00
5	235.00	400.00	235.00	765.00
6	282.00	480.00	282.00	918.00
7	329.00	1,652.00	329.00	1,071.00
8	376.00	1,888.00	376.00	1,224.00
9	423.00	2,124.00	423.00	1,377.00
10	470.00	2,360.00	470.00	1,530.00
11	517.00	2,596.00	517.00	1,683.00
12	564.00	2,832.00	564.00	1,836.00
13	611.00	3,068.00	611.00	1,989.00
14	658.00	3,304.00	658.00	2,142.00
15	705.00	3,540.00	705.00	2,295.00
16	752.00	3,776.00	752.00	2,448.00
17	799.00	4,012.00	799.00	2,601.00
18	846.00	4,248.00	846.00	2,754.00
19	893.00	4,484.00	893.00	2,907.00
20	940.00	4,720.00	940.00	3,060.00
21	987.00	4,956.00	987.00	3,213.00
22	1,034.00	5,192.00	1,034.00	3,366.00
23	1,081.00	5,428.00	1,081.00	3,519.00
24	1,128.00	5,664.00	1,128.00	3,672.00
25	1,175.00	5,900.00	1,175.00	3,825.00
26	1,222.00	6,136.00	1,222.00	3,978.00
27	1,269.00	6,372.00	1,269.00	4,131.00
28	1,316.00	6,608.00	1,316.00	4,284.00
29	1,363.00	6,844.00	1,363.00	4,437.00
30	1,410.00	7,080.00	1,410.00	4,590.00

### Tuition (per class) – Audit Classes (non-refundable)

Credits	Resident	Non-resident
No credit	\$47.00	\$47.00



### Current Fees (rates subject to change)

Student Processing Fee (per credit)	\$2.50
Technology Fee (per credit)	\$2.00

### Processing Fees

Semester Processing Fee	\$10.00
Out-of-Country Application Fee	\$25.00
Transcripts (per copy)	\$3.00
Transcripts (next business day)	\$10.00
Transcript FedEx Fee	\$8.00
Degree/Certificate Application (per term)	\$15.00
Career Interest Test	Not to exceed \$20.00
GED Test	\$90.00
GED Test (repeat of each section)	\$15.00
ID Card	\$2.00
Deferred Tuition Payment Plan Processing Fee (non-refundable)	\$15.00
International Student Insurance Fee (F-1 Students)	\$406.00

## Financial Holds (encumbrances)

If you owe an outstanding debt to the College you will not be allowed to register, or receive any other services, until your debt is paid in full. You can pay your debt at any campus cashier's office during normal working hours. If your debt has been placed with a collection agency you will have to deal directly with the agency to pay off your debt. If you have any questions about your debt, please contact the Bursar's Office at (520) 206-4574. **For an immediate release of your financial hold you will need to pay your debt, in person, with cash, money order or your credit card. You cannot pay over the phone.**

Your debt may include the following (rates subject to change):

Past-Due Tuition	..... Amount of tuition due
Past-Due Book Loan	..... Amount of loan
Collection Agency Fees	... Not to exceed 50% of balance owed
Late Fee	..... \$25.00 - \$100.00 5% of balance: min. \$25, max. \$100 (per occurrence)
Non-sufficient Funds (NSF) Payment Fee	..... \$25.00 (per occurrence)
Excessive Loss or Breakage	..... Replacement cost
Lost Library Books	... Replacement cost plus \$10.00 processing fee
Parking and Traffic Fines	..... \$10.00 - \$25.00 (per applicable regulation)

## Tuition and Fees Payment Methods

Tuition and fees must be paid in full by the published payment deadlines. The payment deadlines for each academic term can be found in the *Schedule of Classes*, on our Web site at <http://www.pima.edu>, and at any campus cashier's, admissions or financial aid office. Failure to pay your tuition and fees by the official payment deadline may result in a late fee (\$25 - \$100).

**Important Notice:** By registering for classes you are accepting financial responsibility for all related tuition and fees. You must drop any unwanted classes, by the official drop deadline, or you will be responsible for payment of all related tuition and fees associated with those classes. **Note:** Pima Community College reserves the right to drop unpaid registrations at any time.

Tuition and Fees may be paid via:

- Credit Card - Visa, MasterCard, American Express, Discover
- Check - personal, traveler's or cashier's
- Money order
- Cash (please do not mail)

### Payment Options

Pima Community College offers a variety of payment options. Payments can be made online, by phone (automated system), in person, or by mail.

### Paying Online

A secure payment can be made online using your credit card or checking account. Log on to the Pima Community College Web site, [www.pima.edu](http://www.pima.edu) and click on "MyPima" to access your account.

### Paying by Phone (automated system)

A secure credit card payment can be made using our automated phone system, MAX 2000, at 520-206-4880.

**Please Note:** Pima Community College employees will not take your credit card payment over the phone.

### Paying in Person

Payments can be made in person at any campus cashier's office. Please call the College information line, (520) 206-4500, for hours of operation. A picture ID is required for check payments.

### Paying by Mail

Mail your payment directly to the Pima Community College Bursar's Office. The College accepts personal checks, money orders, cashier's checks and traveler's checks by mail. Do not mail cash. To mail a payment, please follow these simple steps:

1. Make your check or money order payable to Pima Community College.
2. Include your student identification number and the College's semester code (**200810 for Fall 2007**) on the check/ money order. This will ensure timely processing of your payment.
3. Be sure to mail your payment early enough for it to be received by the payment deadline.
4. **Mail your payment to the following address:**  
Pima Community College  
Bursar's Office  
4905 E. Broadway Blvd.  
Tucson, AZ 85709-1225

### Additional Notes on Payments

- The College will not accept checks printed without a name or address; second-party, out-of-country, or postdated checks; or partial payments.
- College employees will write student identification numbers on checks when students fail to add them.
- Returned check payments are subject to a \$25.00 penalty.
- Returned checks may be forwarded to a collection agency and/or the Pima County Attorney's Office for collection.

**Attention:** It is the policy of Pima Community College to electronically convert and process paper checks received via mail using the Automated Clearing House (ACH) Network, under the rules governed by the National Automated Clearing House Association (NACHA) and the Federal Reserve Bank.

### Payment with Financial Award

Your tuition and fees will be authorized for payment through financial aid if you meet **both** of the following requirements:

1. You have received confirmation of a financial aid award
2. The award is large enough to cover your entire tuition and fees

If you have any questions regarding the status of your financial award, you may contact any campus financial aid office or call the Financial Aid Hotline at 206-4950.



## Student Refund Policy for Credit Courses

### Regular Refund Policy

Students who officially drop one or more classes by the regular refund schedule may be eligible for a refund. The drop must result in a decrease to the total tuition assessment as determined by the number of credit hours for which the student is registered. Refer to the "Tuition and Fees" section of the *Schedule of Classes* to determine if the drop will decrease the tuition assessment.

Students who drop all classes within the official refund period are eligible for a 100% refund of paid tuition and fees. Outstanding charges owed to the College may be deducted from the refund amount.

If a class (or classes) must be canceled by the College, students will receive a 100% refund of paid tuition and fees for the class(es) being canceled. Tuition paid by financial assistance may be returned to the awarding fund.

Refund checks are processed on a weekly basis by the Bursar's Office beginning the week of "Drop/Add." See the *Schedule of Classes* for exact dates. Early refunds, or refunds to credit cards, must be requested through the Bursar's Office at (520) 206-4574.

**Note:** Withdrawing from a class will not create a refund or reduce your amount owed.

### Regular Refund Schedule

<b>Course Length (Enrollment Period)</b>	<b>Refund Deadline</b>
Regular 16 weeks .....	within 13 calendar days after start of the semester
7 or more weeks.....	within 7 calendar days from the first class meeting or the start date of the term. See instructor for information.
4 or more weeks.....	within 4 calendar days from the first class meeting
2 or less than 4 weeks .....	by the day of the first class meeting
less than 2 weeks .....	prior to the day of first class meeting
Noncredit/Study tours .....	Special conditions, see <i>Student Refund Policy for Noncredit Activities and Study Tours</i> on page 37
Audit classes.....	no refunds

**Note:** Refer to the *Schedule of Classes* for the program starting dates. Refunds will not be issued for audit classes or classes withdrawn after the official refund deadlines.

### Special Refunds Policy

Students who **totally withdraw** from the College due to an unforeseen circumstance may request a special provision refund at the admissions office on the campus where they are taking classes. The request must be made in writing and must be made during the semester that the withdrawal occurred. Only tuition will be refunded and the amount of the refund will be pro-rated based on the schedule on the following page. The campus president (or designee) may approve a refund for extenuating circumstances not specifically included in the following provisions.

1. Serious illness or injury. A written doctor's statement verifying that an illness or injury prevented the student from completing classes must be provided.
2. Death of a close family member. The College defines close family members as your spouse, children, parents, grandparents, siblings, grandchildren, or in-laws. Official documentation (such as a death certificate) must be provided in order to receive a refund.
3. Military Temporary Duty (TDY) Assignments. The assignment must be involuntary and unforeseen as of the official deadline for dropping the classes in question. A copy of the official orders requiring the TDY must be provided with the request.

**Note:** The College reserves the right to refuse any special provision request.

### Special Provisions Refund Schedule (pro-rated)

Refer to the *Schedule of Classes* for specific dates

<b>Elapsed Portion of Class(es)</b>	<b>Refund (paid tuition)</b>
30% .....	75%
45% .....	50%
60% .....	25%
Greater than 60% .....	No refund



## Return of Federal Financial Aid Funds (Title IV Funds)\*

Federal regulations require that a percentage of the funds disbursed be returned to students who are federal financial aid recipients if they totally withdraw from the College on or before the 60% point in the enrollment period.

During the first 60% of the enrollment period, students "earn" Federal Title IV funds in direct proportion to the length of time the student remains enrolled.

Example:

Students who withdraw at the 30% point of the enrollment period, earn 30% of all aid that could be disbursed. The remaining 70% of the aid is unearned aid and must be returned.

The College must perform the following steps in the return of funds process:

1. Determine the percentage of the period that the student completed ( $\text{Days attended} \div \text{Days in period} = \text{Percentage completed}$ ).
2. Apply this same percentage to the total awarded Title IV aid for which the student established eligibility before withdrawing ( $\text{Total aid disbursable} \times \text{Percentage completed} = \text{Earned aid}$ ).
3. Subtract earned aid from disbursed aid. This is the earned aid. ( $\text{Earned aid} - \text{Disbursed aid} = \text{Unearned aid}$ .)
4. Distribute responsibility for returning unearned aid by the College and the student.  
The College's share is determined first by taking the lesser of:
  - The total amount of earned aid; or
  - An amount equal to the student's tuition and fee charges multiplied by the percentage of aid unearned.

This comparison ensures that the College will not return more aid than it could have kept to cover tuition and fee charges and that the student will not be required to return aid he or she could not have received as a cash disbursement.

The student's share of the amount to be returned is the difference between the total that has to be returned and the College's share.

5. Allocate unearned aid back to the Title IV programs, including Unsubsidized Stafford Loan, Subsidized Stafford Loan, Federal Perkins Loan, PLUS Loan, Federal Pell Grant, FSEOG, LEAP (SSIG).

The College's share is fully allocated before any of the student's share.

- The College returns unearned aid in the order shown up to the full amount disbursed from one program before moving on to the next.
- Once the College's share has been distributed back to the programs, then the student's share is allocated in its entirety. However, any portion of the unearned aid owed to a grant program is reduced by 50%.

## Withdrawals

The withdrawal date used will depend on whether the student officially withdraws, or if the student drops out without notifying the College. Please refer to the withdrawal process outlined in the current *Schedule of Classes*.

- If a student officially notified the College of his or her intent to withdraw, the withdrawal date used is the date on which the student began the official withdrawal process.
- If a student withdraws without notifying the College, the withdrawal date used is the midpoint (50%) of the payment or enrollment period.

- If a student is enrolled in a program where attendance is required, the withdrawal date used is the student's last day of academic attendance.
- If a student withdraws before classes begin for the applicable semester, the student must repay all financial aid monies issued.
- If a student withdraws from the College, all future financial aid awards for the academic year and summer session(s) will be canceled immediately.

\***Note:** This refund policy is based on U.S. Department of Education regulations subject to change if federal regulations change.

## Student Refund Policy for Noncredit Activities and Study Tours

Community Campus handles the refund requests for special interest, noncredit activities, and study tours. Refund requests must be received seven (7) calendar days prior to the start of the activity. See below for penalties and refunds when ending (termination of) your registration in study tours and other trips. If the College cancels an activity, students will receive full refunds.

Every effort is made to contact students who have enrolled before the start date if an activity has to be canceled. For more information, contact the Community Campus at (520) 206-6422 or (520) 206-6466.



## Cancellation Policies for Study Tours

**One-Day Trips:** Requests to end registrations must be received seven (7) days prior to the tour date.

**Multi-Day Trips:** 100% of the fee will be refunded when your cancellation request is received 60 calendar days or more prior to the tour start date.

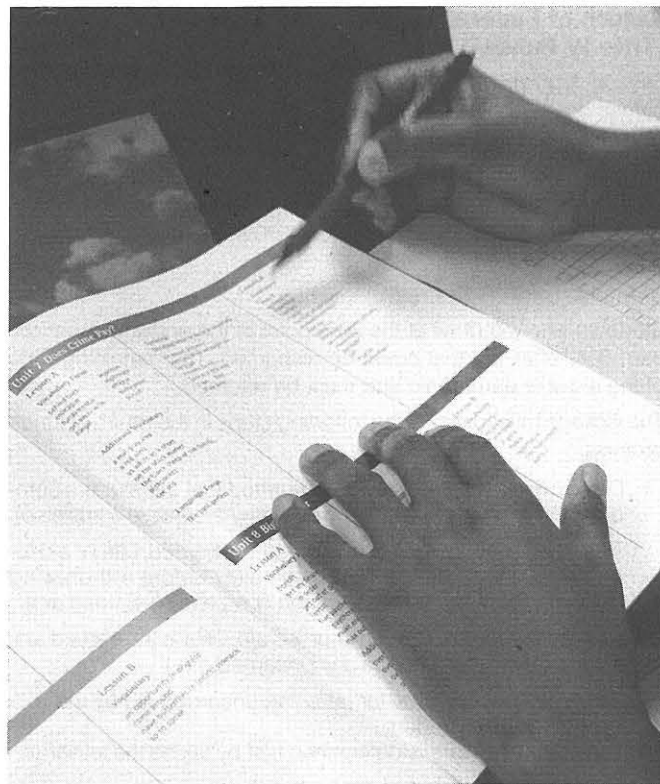
75% of the fee will be refunded when your cancellation request is received 46-59 days prior to the tour start date.

50% of the fee will be refunded when your cancellation request is received 31-45 days prior to the tour start date.

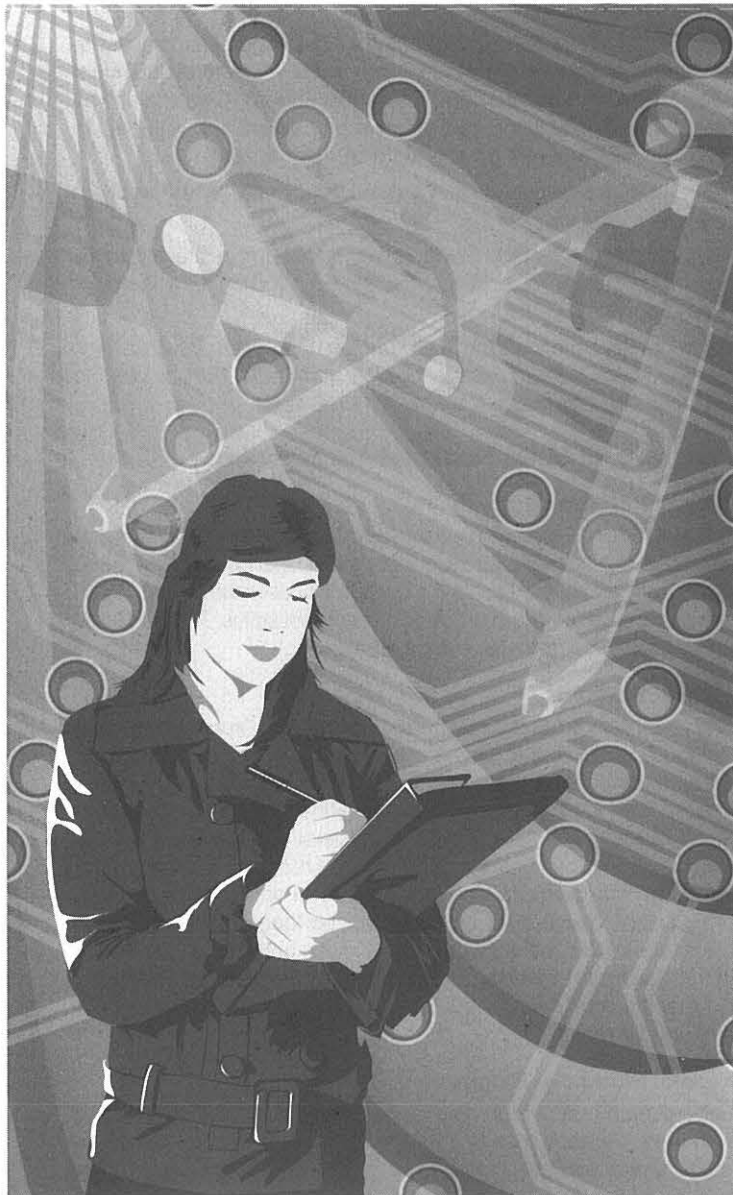
No refunds will be issued when your cancellation request is received within 30 calendar days of the tour start date.

**Note:** When *"Special cancellation policy applies"* is cited in a tour description, cancellation requests will be assessed on an individual tour basis. These cancellation penalties may exceed the percentages listed above.

For more information, please call (520) 206-3952 for further details.



# Financial Assistance





# Financial Aid/Scholarships

## General Information

To provide all members of the community access to Pima Community College and to help them pay for the cost of their education, the financial aid office offers a full range of student financial aid. The money for the financial assistance comes from federal and state programs as well as private donors. Funds are awarded to students based on financial need, academic achievement, and program of study. The first step to applying for financial aid is to complete the Free Application for Federal Student Aid (FAFSA) form. Certain scholarships may require a separate application.

The Free Application for Federal Student Aid (FAFSA) is available at any campus financial aid office or online at: [www.fafsa.ed.gov](http://www.fafsa.ed.gov).

In order to receive first consideration for the limited financial assistance funds that are available for the award year, students should complete and send their FAFSA to the Federal Government by March 15. Applications can then be processed and returned to PCC by the **College's priority date of April 3, 2008**.

However, if the priority date is missed, students may still apply at any time of the year.

All students should apply. Students who do not demonstrate financial need may qualify for scholarships, temporary short-term loans, or other programs.

For more information, see the *Funding Education Beyond High School: The Guide to Federal Student Aid 2006-2007*, or call the Financial Aid Information Line at (520) 206-4950.

## Federal and State Financial Aid Programs

### Federal Pell Grants

The Pell Grant Program provides financial assistance for students who have not earned a bachelor's or professional degree. The federal government establishes who is qualified. It bases the awards to students on income, living situation and enrollment status. The Pell Grant, unlike a loan, does not have to be repaid.

### Federal Stafford

The Federal Stafford Loan Program offers "subsidized" and "unsubsidized" loans. Loans may be made through a bank or credit union that participates in the Stafford Loan Program. A subsidized loan is awarded on the basis of financial need. If a student qualifies for a subsidized loan, the federal government pays the interest on the loan until the student starts repaying it. On the other hand, an unsubsidized loan is not awarded on the basis of need. If a student qualifies for an unsubsidized loan, the student pays the interest from the date the loan is given until the loan is repaid in full. Students must start to repay the loan or loans beginning six (6) months after they graduate, leave school, or drop below half-time enrollment.

### Federal Plus Loan Program

Federal Plus Loan Program is for parents who have students living with them as dependents. The loans are made through a bank or credit union that participates in the Stafford Loan Program. This loan program enables parents with good credit histories to borrow funds to pay for the education expenses of each child who is a dependent and an undergraduate student enrolled at least half-time. Parents cannot receive more than the cost of education, with the amount of any other financial aid received also deducted. The interest rate is variable, but it will never exceed nine (9) percent. The interest rate for Plus Loans is adjusted each year on July 1.

Payment of principal and interest begins within 60 days after the last issuance of loan money to the parents. In addition, interest begins to accrue (be charged) from the date the first loan payment is given.

## Campus-Based Programs

The federal government has three programs through which funds are given out from the College. Pima Community College participates in these campus-based programs: the Federal Supplemental Educational Opportunity Grant, the Federal Work Study, and the Federal Perkins Loan. Every year the government gives the College a certain amount of funds to award. Financial need is the qualification upon which these programs are based. Funds will be awarded to the neediest students first. Since the funds given to the College are limited, students are encouraged to apply as early as possible to meet the **College's priority date of April 3**.

### Federal Supplemental Educational Opportunity Grants (FSEOG)

A Federal Supplemental Educational Opportunity Grant (FSEOG) is for undergraduate students with exceptional financial need. In awarding FSEOG, the College gives priority to students who receive Federal Pell Grants. An FSEOG does not have to be paid back.

### Federal Work-Study

The Federal Work-Study Program provides jobs for students with financial need. Students may work up to 19.5 hours per week in a job that is either on-campus or off-campus. The program encourages community service work and work related to students' courses of study.

### Federal Perkins Loans

A Federal Perkins Loan is a low-interest (5 percent) loan. The amount of the loan is based on exceptional financial need. These loans must be repaid. Students have to start repaying the loan six (6) months after they are no longer enrolled in school. The starting date to repay the loan can be delayed when in certain circumstances such as: performing community service, unemployment, or economic hardship.

### Leveraging Educational Assistance Partnership (LEAP)

The Leveraging Educational Assistance Partnership (LEAP) grant program, formerly known as the Arizona State Student Incentive Grant Program (SSIG), makes grants available to students with financial need. The College determines the amount of each award based on individual need and enrollment status.

### Institutional Student Aid (College Work-Study)

A number of campus jobs are available throughout the College. These positions are not based on financial need, and the students are selected by the employing department. Students are able to work an average of 19.5 hours per week. For application and placement information, contact any campus Job Placement office.

### Short-Term Tuition Loans

Short-term tuition loans are available for Arizona residents and qualified veterans. These tuition loans allow students to defer payment of some or all of their tuition up to 60 days from the start of the academic term. For more information on short-term tuition loans please visit our Website: [www.pima.edu](http://www.pima.edu), or stop by any campus cashier office. Eligible veterans at the Downtown Campus need to visit the Admissions Office to complete the loan paperwork.

## PCC Foundation Scholarships

Every year, the Pima Community College Foundation awards hundreds of scholarships that have been donated by generous private donors to Pima students. Scholarships may be awarded on the basis of merit, financial need or a combination of both, as well as other criteria.

Many scholarships are general in nature, while others target specific program areas such as Healthcare or Occupational programs.

The PCC Foundation Scholarship application is available on the Foundation's web site, [www.pima.edu/foundation](http://www.pima.edu/foundation).

Students are not required to complete the Free Application for Federal Student Aid (FAFSA) to be eligible for Foundation scholarships. However, students must be enrolled at Pima before their scholarships will be awarded.

Applications are reviewed by the PCC Foundation Scholarship Committee composed of representatives from each Pima campus, the Office of Financial Aid and the Foundation.

## PCC Scholarships

Pima Community College helps student achieve their dreams through scholarships and grants.

### Chancellor's Recognition Scholarship

The Chancellor's Recognition Scholarship is awarded to well-rounded graduating Pima County high school students who have shown academic competency and made contributions in several aspects of academic and civic life.

### PCC Student Grants Program

The PCC Student Grants Program provides full or partial tuition and fees, and/or a textbook stipend to qualified, selected applicants.

### Raytheon Scholars Program

The Raytheon Scholars program accepts up to 10 students per year and offers a number of benefits to successful students.

More information and applications for PCC scholarships may be found at: [www.pima.edu/scholarships](http://www.pima.edu/scholarships).

## Department of Veterans Affairs (DVA) Educational Assistance

Pima Community College is an approved institution for Department of Veterans Affairs (DVA) educational benefits. Veterans, survivors, and dependents, eligible for DVA benefits under Title 38 of the U.S. Code (Chapters 30, 32, and 35), and reservists (Arizona National Guard) under Title 10, Chapter 1606, must be certified through the District Veterans Office (DVO). Students are encouraged to complete the required DVA procedures as early as possible through any campus veterans office. Students must meet PCC's admissions requirements and comply with the College's Academic Standards of Progress (see the Admission, Registration, Records section of this catalog for a complete description) to maintain your status.

### Enrollment Certification and Limitations

Eligible persons (continuing veterans) will be certified each semester within 30 days of registering for courses that fall within their DVA approved program. Please allow 30 days for electronic DVA processing. Eligible persons attending in their first semester will be

certified within 30 days of registering and receipt of all necessary documents. This initial DVA processing may take up to 60 days to complete.

### Benefits

Veterans receive educational assistance based on their enrollment certification status for a certified period (e.g., full-time, three-quarter-time, half-time). In a "traditional" semester (16 or 17 weeks in length), this measure is determined by the following:

- Full-time: 12 or more semester credits
- Three-quarter-time: 9 - 11 semester credits
- Half-time: 6 - 8 semester credits

Less than half-time periods are eligible for reimbursement of tuition and college fees paid by the student. Veterans on less than half-time periods are entitled to a request for "Lump Sum Payment."

Veterans at the half-time status or higher will receive a monthly benefit check. The rate of that check will vary by student status and "chapter" of eligibility. Up-to-date pay charts are available in the campus admissions offices or online at [www.gibill.va.gov](http://www.gibill.va.gov)

Enrollment in accelerated (nonstandard semester) terms (e.g., Davis-Monthan Air Force Base courses) will have an effect on the monthly rate received. Status is determined by the number of semester credits taken in a certified period (number of weeks). Combination of traditional and nonstandard courses will cause a variance in your status; therefore, there will be changes in the amount of the checks.

DVA will not allow for the certification of open entry/open exit courses until a final grade (course completion) is received and posted to the students' record. Combination of open entry/open exit courses with other traditional or nonstandard courses has a direct impact on your monthly entitlement and rates.

### Degree Plans

Students applying for DVA educational benefits can only be certified for courses they are enrolled in that are within their objective—program of study (or major). Eligible students should select a program of study (approved by the DVA) prior to registration for classes. Veterans are provided Degree Plans to indicate the course(s), in accordance with the applicable PCC catalog, that fit within their program. A Degree Plan is normally provided upon initial enrollment for benefits or when a program change occurs.

All degree programs are approved for a specific number of credit hours. Eligible students will not be certified or paid by the DVA for courses above and beyond the approved length. The DVA will pay only for required courses in approved programs. This same rule applies to certificate and vocational certificate programs which may be measured in clock hours rather than semester credits.

A program change may occur when a veteran changes institutions (place of training) and there is a material loss of 12 credits or more that are not transferrable to the new institution. The DVA approves and monitors the number of program changes over the period of eligibility to ensure progress in reported goals.

### Academic Standards

DVA educational benefits will not be paid for courses unless they are used in computing graduation requirements for the selected objective. Students receiving the grade of General or Official Withdrawal in any of these courses will have to reimburse the DVA retroactive to the start of the semester, unless there are mitigating circumstances approved by the DVA. In some cases the interval pay may also be adjusted as a result of the withdrawal.

All veterans should maintain a 2.0 grade point average (GPA) for continuous certification. Veterans not making satisfactory progress



or who do not maintain academic status (see "Academic Standards of Progress" in the Admissions, Registration, Records, and Graduation section) will not be certified (benefits will be suspended) until the cause for the academic disqualification has been corrected and the program of study being pursued is suited to the person's aptitudes, interests, and abilities.

### Transfer of Previously Earned Credit

DVA requires that all students receiving educational benefits have their "prior military and/or college experience" evaluated for credit toward the objective at Pima Community College. Students must have all official transcripts and a DD Form 214 (Military) sent to PCC for evaluation. Upon receipt, the College will evaluate the document(s) to determine what credit can be accepted at Pima. This information must then be forwarded to the DVA prior to the second semester of attendance. Failure to have this process completed during the first semester of attendance could result in overpayment and/or delay of benefits.

### Veterans Services

A student who is a veteran, or a survivor or dependent of a veteran, may be eligible for veterans educational benefits. For more information on eligibility and on how to apply, students should contact any campus admissions office.

### Additional Benefits

Students who are eligible for DVA educational benefits and have completed the enrollment certification process, may also apply for Tutorial and/or DVA Work-Study. These programs are available in addition to the educational benefits. For more information concerning eligibility for these programs and the process to obtain this assistance contact any campus veterans office.

## Pima Community College Foundation

The Pima Community College Foundation was incorporated as a not-for-profit organization in 1977 by Pima County business leaders to assist Pima Community College in its efforts to expand educational opportunities and services in the community. Today, the PCC Foundation provides a means for citizens to actively support the future growth and development of their community college.

The mission of the PCC Foundation is to develop resources to provide learning opportunities at the College. Areas of support include student scholarships, equipment and supplies, program development, and special needs of the College.

The PCC Foundation also oversees the Pima Community College Alumni Association, dedicated to maintaining relationships with former students. The Association provides a continuation of the services and resources that are available to students, as well as opportunities for social events and fundraising projects. To learn more, visit the web site at [www.pima.edu/alumni](http://www.pima.edu/alumni).

Gifts to the Foundation are tax deductible, and the Foundation will assist prospective donors in making donations, bequests, and in the planning of trust and will arrangements for the college. For more information or assistance, please contact the Pima Community College Foundation office at (520)206-4646, visit the web site, [www.pima.edu/foundation](http://www.pima.edu/foundation) or email [foundation@pima.edu](mailto:foundation@pima.edu).

### Foundation Officers, 2007

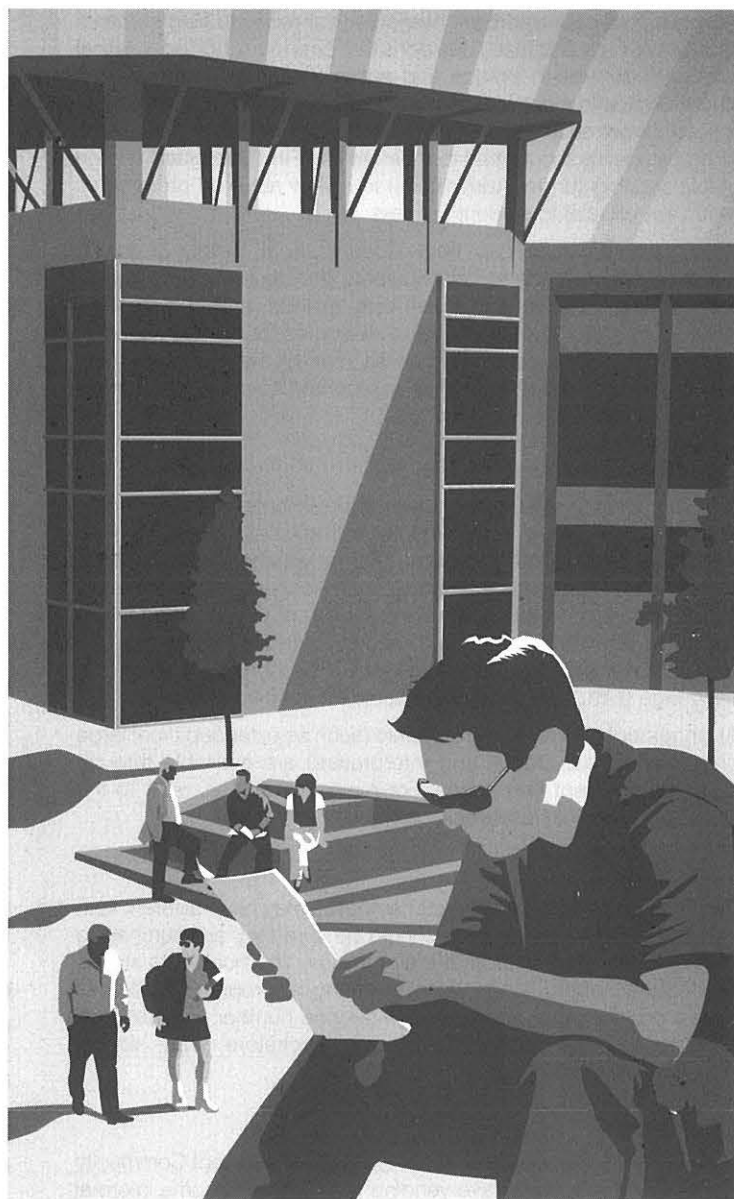
Marc Fleischman, Chair  
 Mask Ziska, Chair-Elect  
 Mary Rowley, Vice Chair  
 Jim Stith, Secretary  
 Bob Ramirez, Treasurer  
 Sherry Hall, Immediate Past Chair  
 Cheryl House, CFRE, Executive Director

### Foundation Board of Directors

Gloria Alvarar	Mark Irvin
Gloria Bloomer	Tomás Leon
Dan Chambers	Paul Lindsey
Juan Ciscomani	Elizabeth Maish
Bill Conrad	Susan Mannion
James Davenport	Rich Moret
Blake Down	Betty Niles
Larry Finuf	Bernie Ray
Roy Flores, Ph.D.	Chris Reaney
Ed Foster	Norm Rebenstorf, Jr.
Greg Good	Leo Roop
Diane Groover	Robert Shelton
Howard Harpst	Debbie Wagner
Dennis Holden	Susan Wallach



# Student Services and Student Life



## Student Services

### Admissions/Registration

The admissions staff welcomes all who are interested in pursuing their education. Students must be admitted to the College before taking assessments, participating in an orientation, or registering for classes. Admissions and registration services are available year-round on all campuses and at each learning center. Information is provided on applying for admission, registration, student records, residency, veterans services, transcript evaluations, and graduation. For more information, see the Admissions, Registration, and Records section of this catalog, or visit our Web site at <http://www.pima.edu>.

### Advising/Counseling

Advisors and counselors are available year-round to help students choose courses and make decisions that best meet their educational needs. Both walk-in service and appointments are available. All students should meet with an advisor, counselor, or faculty member at least once each semester to discuss proper course selection. All new students should read the **"Before The First Semester"** section of this catalog (under Admissions) to review required procedures which are crucial to student success.

Counseling services can help students in a variety of ways. Counselors are ready to help students decide on college majors and careers that match their interests, abilities, and personalities. Counselors help students develop strategies for college success. They also offer support with stress management and personal issues and help students identify appropriate community agencies for assistance.

### Assessments

Reading, writing, and mathematics assessments for placement in courses appropriate to a student's skill level are available at all campuses and learning centers. (For assessment requirements, please refer to "New Student Requirements for Assessment, Advising, and Orientation" in the Admissions section of this catalog.) Some locations offer other testing services, including those for the General Education Development test (GED), English as a Second Language (ESL), and placement tests for specific disciplines.

Arrangements for disabled students (such as extended time, large print, writing assistants, and interpreters) are available through Disabled Student Resources. For more information, refer to the Disabled Student Resources information in this section.

### Bookstores

Similar classes held on different campuses may have different textbook requirements. Students should be sure they are purchasing the books for the location of their classes. The bookstore staff is available to assist students in selecting appropriate textbooks based on instructor and course reference number. For textbook information and ordering, visit the bookstore Web site at <http://www.pima.bkstr.com>.

### Cafeterias

Cafeteria services are provided at all campuses except Community Campus. All locations have vending machines and some informal seating areas.

### Department of Public Safety (Campus Police)

The PCC Department of Public Safety provides law enforcement, security and public service throughout the College District 24-hours a day, 7-days a week. The DPS mission is to provide a safe

and secure environment for its students, staff, faculty and visitors. Each main campus has a police office that maintains lost and found and basic First Aid services. Escorts to and from a vehicle are available upon request.

DPS provides an annual crime statistics and Clery Crime Act Report that includes statistics for the previous three years concerning reported crimes that occurred on campus and in certain off-campus buildings owned or controlled by the Pima County Community College District.

The report also includes institutional policies concerning campus security, such as policies concerning alcohol and drug use, crime prevention, the reporting of crimes, sexual assault, registered sex offenders, and other matters. You can obtain a copy of this report by contacting (520) 206-4500. The report can also be found online at <http://www.pima.edu/dps>. Updates and important safety and security issues are published in the student newspaper *Aztec Press*, the weekly online employee newsletter *@PimaNews*, and through the College's Internet home page, <http://www.pima.edu>.

The College's Parking and Traffic Regulation is also available online at [http://www.pima.edu/dps/parking\\_reg.pdf](http://www.pima.edu/dps/parking_reg.pdf).

For emergencies and to report crimes or suspicious activity call 911 or 206-2700. For non-emergencies or escort requests call 206-2700.

### Career Services

Career counseling is available at each campus. Counselors can assist students in deciding on a college major and on a career that matches their interests, skills, and personality. For a counseling appointment, students may call any of the campus counseling and advising centers.

Some campuses also have Career Centers. The Career Centers offer sources of information to help students discover their personal interests and strengths and explore career choices, including the skills required, salary ranges, and future outlook for jobs. The centers also provide free assistance with resume writing, interview techniques and job search strategies.

### Cashier

Students can pay their tuition and fees at any campus cashier's office. Accepted forms of payments include cash, check, money order, and credit cards. Financial aid recipients need to confirm payment with the campus financial aid office. Short-term tuition loans are available for Arizona residents and qualified veterans. These tuition loans allow students to defer payment of some, or all, of their tuition up to 60 days from the start of the academic term. For more information on short-term tuition loans please visit our Website: [www.pima.edu](http://www.pima.edu), or stop by any campus cashier office.

### Childcare

Child Development Centers are located at Desert Vista Campus, Downtown Campus, and West Campus. Quality, convenient childcare is provided for toddlers and pre-school children. Students interested in this service should visit one of the centers and complete a registration form. This service is provided for a fee on a space available basis.

### Disabled Student Resources

Pima County Community College District complies with the Americans with Disabilities Act (ADA) of 1990 and section 504 of the rehabilitation act of 1973 as amended, as well as other applicable federal and state laws and regulations that prohibit discrimination on the basis of disability. No qualified person will, solely by

reason of disability, be denied access to, participation in, or the benefits of any program, activity, or service offered by the College.

Disabled Students Resources (DSR) assists students through the development of academic adjustment service plans that authorize specific adjustments. The DSR department also refers students with disabilities to other College departments and community agencies that can enhance and support their educational experience. When appropriate, services provided by DSR may include academic and career advising, priority registration, note-taking assistance, sign language interpreting, text captioning, auxiliary aids and services, specialized equipment, taped texts, testing accommodations, and mobility assistance.

Student requests for accommodation due to disability are processed through DSR offices. DSR specialists will provide intake assistance, determine eligibility based on appropriate documentation, and monitor and adjust student accommodations with the cooperation of students. Students with disabilities may contact any DSR office listed below to begin a request for accommodation or to continue a service plan each semester.

The College offers special assistive technologies available in labs, libraries, and classrooms that assist students in succeeding in courses and completing degrees. These technologies may increase the speed of learning, or provide a basis for accommodation in future employment after completion of academic programs. Contact a DSR specialist at any campus for more information.

The actual provision of academic adjustments is a College-wide responsibility, and may require the assistance of instructors or other employees. DSR serves as a resource to College personnel, and welcomes inquiries and requests for technical assistance.



### Community Campus

Student Development Area B .....206-7286 (Voice/TTY)

### Desert Vista Campus

Plaza Building, F-109 .....206-5151 (Voice/TTY)

### Downtown Campus

Student Center, Counseling .....206-7286 (Voice/TTY)

### East Campus / Northeast Education Center

Student Center, L-231 .....206-7699 (Voice/TTY)

### Northwest Campus

Building B, Counseling .....206-2209 (Voice/TTY)

### West Campus

Santa Catalina Building, C-130 .....206-6688 (Voice/TTY)

Student Support Services	CC	DC	DVC	DMAFB	EC	NEC	NWC	SEC	WC	WEB
Admissions and Registration	■	■	■	■	■	■	■	■	■	■
Advising and/or Counseling	■	■	■	■	■	■	■	■	■	■
Assessment—Basic Skills	■	■	■	■	■	■	■	■	■	
Bookstore		■	■		■		■		■	■
Cafeteria		■	■		■		■		■	
Career Services		■	■		■		■		■	
Campus Police Services	■	■	■		■		■		■	
Cashier	■	■	■		■		■		■	■
Childcare		■	■						■	
Disabled Student Resources	■	■	■		■		■		■	
Financial Aid	■	■	■		■		■		■	
International Student Services									■	
Job Information		■	■		■		■		■	
Libraries		■	■		■		■		■	■
Orientation	■	■	■	■	■	■	■	■	■	■
Student ID Cards	■	■	■		■		■		■	
Transcripts (official)	■	■	■		■		■		■	■
Tutoring	■	■	■		■		■		■	■
Vererans Services	■	■	■	■	■		■		■	■

#### Key:

**CC** = Community Campus  
**DC** = Downtown Campus

**DVC** = Desert Vista Campus  
**DMAFB** = Davis-Monthan AFB  
Education Center

**EC** = East Campus  
**NEC** = Northeast Education Center

**NWC** = Northwest Campus  
**SEC** = Southeast Education Center  
**WC** = West Campus



## Financial Aid

There are many ways for students to pay for education under various grant, loan and scholarship programs. Although the federal government provides the largest amount of aid, a student may qualify for funds from Pima Community College and from private donors. Contact a financial aid specialist at one of the campus financial aid offices to get started by reviewing eligibility criteria, deadlines, and application processes. For more information, please see the Financial Aid/Scholarships section of this catalog, or visit our Web site at <http://www.pima.edu>.

## Insurance

Accident and sickness medical expense insurance may be purchased by students. Forms and information are available at each campus student services area.

## International Student Services

The International Students Services Office (ISSO), located at West Campus, was established to recruit international students and help them reach their educational goals. For more information, call the ISSO at (520) 206-6732.

## Job Information

Job information is available to students who are currently enrolled or have taken a class at Pima Community College. Most campuses maintain a list of part-time and full-time job opportunities available throughout the College and some off-campus sites.

## Library Services

Pima Community College provides library services at all campuses except Community Campus. Library resources include books, journals, audio/video tapes, compact discs, microforms, online databases, and the World Wide Web.

All libraries have staff available to answer reference questions and assist students in using library and Internet resources. Campus librarians offer library research skills classes, individualized help sessions, workshops and library orientation presentations. In addition to these services, there are orientation videos available for check out. Students should ask any library staff member for more information.

Resources are listed in an online catalog called PIMALINK, which can be accessed via the World Wide Web at <http://www.library.pima.edu>. PIMALINK lists most materials owned by college libraries. It also provides links to the University of Arizona library and the Tucson-Pima Public library. PIMALINK contains a number of databases of full text and/or abstract journal articles, plus encyclopedias, and many other electronic resources.

PIMALINK can be accessed from any on-campus library or computer center PC. Students can also connect to PIMALINK from their home or office through a PC that is connected to an Internet service provider. Some databases are available to dial-in users who have a student ID card with a bar code. Ask a librarian for information on how to gain access to all PIMALINK resources from off-campus.

Full access to the Pima Community College library collection is available from any campus library. Items that are not available on one campus can be delivered to another campus. All libraries also provide an interlibrary loan service that will borrow and deliver materials available from other institutions. All the libraries provide study and lounge areas.

## Orientation

All new students attending college for the first time are required to complete a New Student Orientation. Before doing so, students must turn in a completed admissions application and take the reading, writing, and math assessments. To make a reservation for orientation, students should contact an advising and counseling center.

## Parking and Bus Service

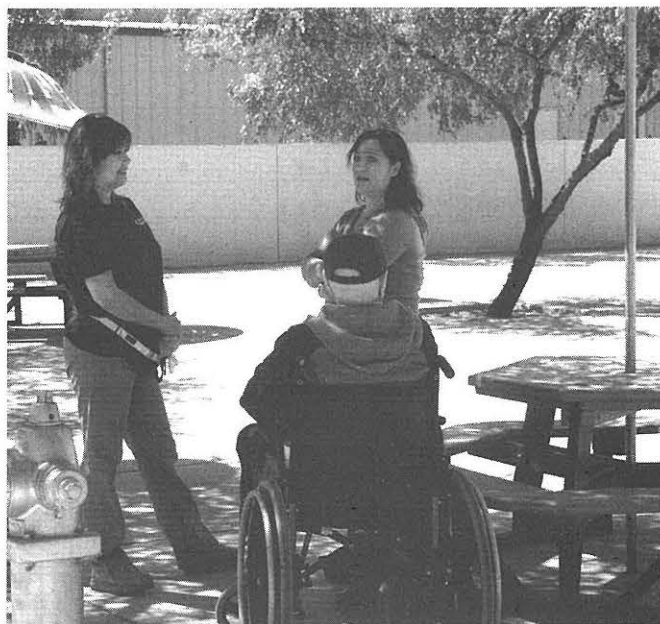
Free parking is provided at all Pima Community College campuses. However, students are responsible for reading and understanding the College's parking and traffic regulations. For complete information on parking and traffic regulations, see the Pima County Community College District Parking & Traffic Regulations for Motor Vehicles, Bicycles and Other Non-Pedestrian Devices, available at all campus libraries and at any campus Dean of Student Development office. For information regarding how to obtain disabled parking permits, contact a DSR specialist on any campus.

To organize a car pool, call RideShare (884-7433) for more information. For students interested in riding the public bus, SunTran provides bus service to all campuses. Copies of current bus schedules are available in the Student Life area of each campus, or by calling SunTran at 792-9222 for schedule information.

In accordance with A.R.S. 15-1444C, all vehicles allowed to park in any Pima Community College parking lot must comply with the emissions standard as stated in A.R.S. 49-542. Out-of-county or out-of-state students are required to sign an affidavit, when they register, that states their vehicle meets the Arizona emission standards. If a vehicle is not on record as complying, it is subject to being towed at the owner's expense.

## Specialized Programs

Pima Community College has designed special programs to assist individuals who are reentering the workforce, international students, veterans and students with disabilities. These programs may help qualified students in getting financial aid or benefits, career information, counseling, advising, and tutoring. Some campuses offer specific activities for certain populations. Contact any campus Dean of Student Development office for more information.



## Student Identification Cards

A student identification card provides access to PCC libraries, bookstores, assessment/testing centers, athletic facilities, and computer labs. Students may add value to their ID card to pay for printing in College libraries and labs. Students may use their PCC ID to receive discounts on many events in town. ID Cards can be obtained by paying the fee at the cashier's office and taking the receipt to the student ID area. Cards must be validated each term.

## Transcripts

Unofficial transcripts may be obtained at any campus admissions office, advising/counseling area, or One Stop/Express Services area. Official Transcripts may be requested through any campus, learning center, or on our Web site at <http://www.pima.edu>. They may also be requested by mail. Please allow seven working days for processing of official transcripts.

## Tutoring

Free tutoring is available in a variety of subjects for students who need help in their studies. Contact any campus learning center for additional information.

# Student Life

Pima Community College offers a rewarding environment for its students. There are opportunities to get together to share common interests, celebrate diverse cultures, enjoy various cultural events, and much more. In addition, there are avenues available to develop and demonstrate leadership qualities and to be a voice within the College. Specific information on student government, student clubs and organizations, and cultural events can be obtained by consulting the offices of Student Life or the Dean of Student Development on any campus.

## Clubs and Organizations

For those students with similar interests, the College has a variety of clubs and organizations. For information on all clubs, contact either the campus Student Life office or any campus Dean of Student Development office.

## Leadership and Student Government

Students have a voice in College functions through recognized campus student government associations, the Board of Governors, and appropriate student groups and committees. Student government representatives also sit on various task forces and committees that make recommendations to the administration. Although the student representatives on the Board of Governors cannot cast a vote with the official members, they can voice an opinion on agenda items.

Students are urged to volunteer for College task forces and committees. For information on these activities, consult the office of Student Life or Dean of Student Development office on any campus.

## Performing Arts

PCC provides experience in the performing arts at its comprehensive Center for the Arts, headquartered at the West Campus. It houses the 420-seat Proscenium Theater, a studio theater, a recital hall, stage shops, classroom space, an art gallery, and an outdoor amphitheater. In addition, PCC's Theater Department is known for its contemporary, multicultural focus. The department presents student performances and Live Arts events at the Center for the Arts throughout the year. Discounted rates to performances are available to students with a valid PCC Student ID. For more information, call the Center for the Arts at 206-6988; for information on performance tickets, call the CFA box office at 206-6986.

## Phi Theta Kappa

The College offers membership in Phi Theta Kappa (PTK), an international honors society. The members of this society have prestige of membership, leadership opportunities, availability of honor society scholarships, involvement in community projects, and acquaintance with other honor society members.

For additional information, contact any campus Dean of Student Development office.

## Publications

Students interested in writing, editing, and reporting, can work on one of Pima's two student publications. *Aztec Press*, located at the West Campus, is a weekly newspaper that provides students an opportunity to learn about journalism. For more information about serving on the newspaper staff in any position, please contact either the Arts and Communications Division office or *Aztec Press* at 206-6800. Pima also has a literary magazine. Students interested in this form of publishing may enroll in WRT 162-Literary Magazine Workshop held at the Downtown Campus. The workshop annually publishes *Cababi*. The *Cababi* contains literary pieces, including those from Downtown Campus students, faculty, and staff. The magazine also sponsors an annual art contest for its cover and center pages.

## Sports - Intercollegiate Athletics

Pima Community College is a member of the Arizona Community College Athletic Association, National Junior College Athletic Association, and the NJCAA Region #1. The sports organization governing the College's participation sets the rules of who can play (eligibility requirements). The basic requirements are that the athletes be full-time enrolled students, be making progress in their studies (satisfactory academic progress), and that each person has received a medical clearance to participate. Pima competes in a variety of sports, including baseball (men), basketball (men and women), cross-country (men and women), football (men), golf (men and women), soccer (men and women), softball (women), tennis (men and women), track (men and women), and volleyball (women).

## Student Housing

Pima Community College does not own or operate student housing, either on campus or in the community. However, students can receive information about community agencies and organizations that provide housing by contacting any campus Dean of Student Development office.

## Drug Free Schools and Communities Act Information

Pima Community College is committed to the Drug Free Schools and Communities Act Amendments of 1989 (Public Law 101-226, 20 U.S.C. §1145g).

### Standards of Conduct

The unlawful possession, use, or distribution of illicit drugs and alcohol by students and employees is prohibited. The following misconduct is subject to disciplinary action, including exclusion, suspension, or expulsion:

1. Violating or failing to comply with published rules and regulations of conduct of the College which prohibit the unlawful possession, use, or distribution of illicit drugs and alcohol by students and employees on College property or as part of any of its activities;

OR

2. Being under the influence of, using, selling, possessing, or distributing any illicit drugs or alcohol on College property or as part of any of its activities. This prohibition includes, but is not necessarily limited to, marijuana, any narcotic drug, hallucinogen, stimulant, depressant, amphetamine, barbiturate, abusable glue, aerosol paint, or other chemical substances. Over-the-counter drugs are excluded from consideration unless improperly used.

### Legal Sanctions

Local, state, and federal laws prohibit the unlawful possession, use, or distribution of illicit drugs and alcohol. Conviction for violating these laws can lead to imprisonment, fine, probation, and/or assigned community service. Students convicted of a drug and/or alcohol-related offense may be ineligible to receive federally funded or subsidized grants, loans, scholarships, or employment. Pima County Community College District will fully subscribe to and cooperate with the local, state, and federal authorities in the enforcement of all laws regarding the unlawful possession, use, or distribution of illicit drugs and alcohol.

### Health Risks

There are definite health risks associated with the use of alcohol and illegal substances. Students who experiment with drugs, alcohol, and illegal substances, or use them recreationally, may develop a pattern of use that leads to abuse and addiction. Use of alcohol and illegal substances is a major factor in accidents and injuries, and among persons between the ages of 18 and 24, it is responsible for more deaths than all other causes combined.

### Support Resources

College officials assist students with appropriate referrals and information concerning drug and alcohol education, counseling, treatment, or rehabilitation or re-entry programs that may be available in the community. Contact Advising and Counseling on any campus for information.





# Educational Options



## Introduction

To meet the diverse needs of students, Pima Community College offers a variety of ways for students to reach their educational goals. Students can choose from traditional, alternative-style, or accelerated classes. These classes cover many subject areas and fulfill degree and certificate requirements. Students can take classes to transfer into a four-year institution, prepare for job training, or continue their education in an area of special interest.

These classes are provided during the day, evenings, and weekends. Evening classes begin at 5:00 p.m. or later and are highlighted in the *Schedule of Classes*. Classes are offered at all PCC campuses and learning centers, as well as more than 100 off-campus sites, including Davis-Monthan Air Force Base, public schools, and neighborhood centers in Pima County.

## Traditional-Style Classes

PCC offers traditional-style classes in which students are required to attend lecture and/or lab on specified days and times. Regular classes run for 16 weeks during fall and spring semesters.

## Alternative-Style Classes

PCC also offers alternative-style classes that provide students with different teaching methods or within different time frames. These classes are designed to fit students' learning styles and scheduling needs and include:

- Express Format – Students attend class one night a week, year round, and earn an associate's degree in two years.
- Honors Content – This course may be taken for Honors credit, with additional work expected of the student beyond regular course requirements.
- Internet/Web – Classes taught through the World Wide Web.
- OpenEntry/Open Exit – Students enroll at any time during the semester and complete required work at their own pace within the semester or by arrangement with the instructor.
- Self-Paced – Students work off-campus at their own pace, with study materials prepared by College faculty. Students must meet with faculty for the initial class at the time and room defined in the *Schedule of Classes*.
- Self-Paced on Campus – Students work on-campus each week at their own pace, in the room defined in the *Schedule of Classes*, with faculty guidance. Students must meet with faculty in the room defined during the first week of classes.
- Television and the Web – Students receive instruction via cable television and turn in their work via the Internet.
- Traditional Classroom – Students attend lecture and/or lab on specified days and times on- or off-campus with a teacher presenting material to the students.
- Web and Classroom – Students receive instruction in the classroom and through the World Wide Web with reduced time in the classroom.

- Web Self-Paced – Students work via the World Wide Web at their own pace with materials provided by College faculty through the World Wide Web.

See the *Schedule of Classes* and *Student Handbook* for more information about these options.

## Honors Program

The Honors Program features an enhanced curriculum where students can expand their intellectual capabilities, develop creativity and practice leadership skills. The primary goals of the Honors Program are to encourage leadership and community service opportunities and facilitate entry into Honors Programs at four-year colleges. The Honors Program features one-on-one guidance in seeking scholarships and awards, small class sizes, and a strong support network among students, faculty, and staff.

To graduate from Pima Community College with an Honors designation, students must complete a minimum of 15 credit hours of honors courses in at least three general education areas, with an overall GPA of 3.5. The Honors 101 Colloquium (3 credits) counts toward this 15-credit minimum.

### Admission Criteria

New students qualify by meeting one of these criteria:

1. ACT score of 29 or a combined SAT score of 1290
2. High School GPA of at least 3.5 and at least one of the following:
  - a. membership in high school honor society
  - b. advanced placement credit
  - c. placement into Writing 101 and Reading 112

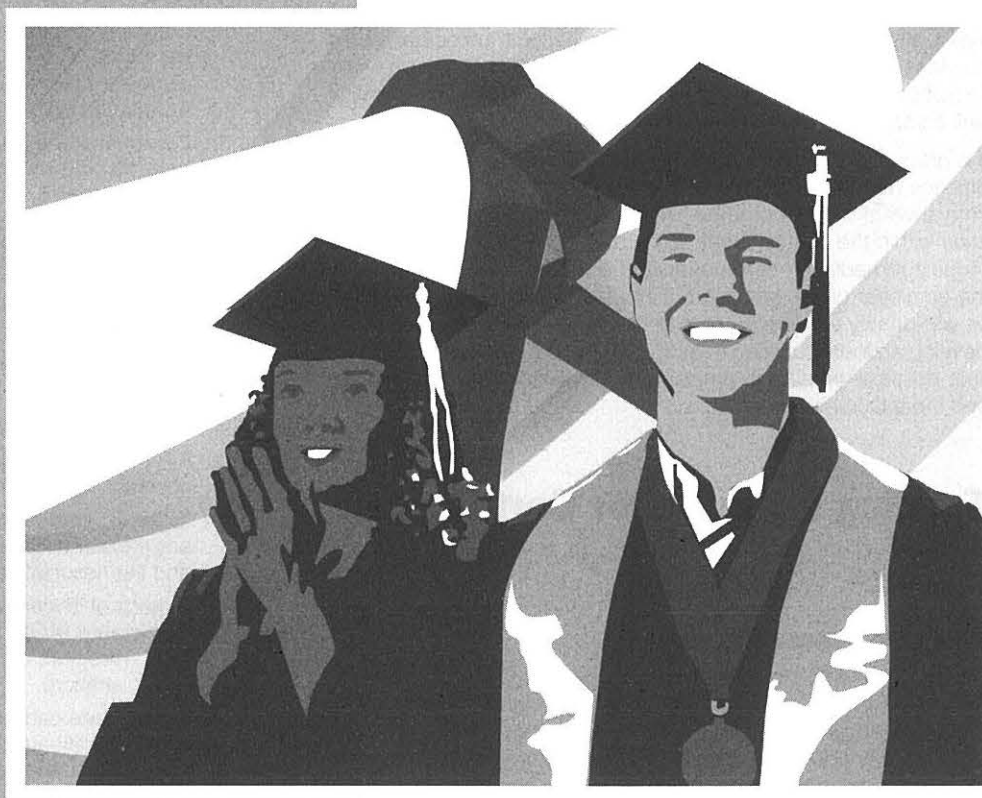
Continuing and transfer students qualify by meeting at least one of these criteria:

1. 3.5 GPA and placement into or enrollment in Writing 101 and Reading 112
2. 12 credits or more and a 3.5 GPA in college courses numbered 100 and above.

### Admission Process

Applications for the Honors Program are available at any campus. They are also available on the Honors Program Website: <http://www.pima.edu/honors/>, where additional information about the Honors Program is available. For information about other honors societies, see Phi Theta Kappa.

# Earning a Degree or Certificate





## Degree, Certificate, and Graduation Requirements

Pima Community College offers certificates and degrees in a variety of areas. Each certificate and degree has specified program requirements for graduation. See certificate and degree displays for specific program requirements. The certificates and degrees are displayed alphabetically beginning on page 67 with Accounting.

Each program display lists the required coursework and credits. A degree may be awarded with fewer than the number of credits shown in the program display as long as the student has completed the required coursework and a minimum of 60 credit hours numbered 100 or higher.

## Guaranteed Workforce/ Occupational Curriculum

Pima Community College believes in its faculty and staff, and in the quality of the instruction and technical skill competencies it provides to students. Therefore, Pima Community College's workforce/occupational program graduates are guaranteed technical skill competencies.

If a graduate of a credit certificate program, Associate in Applied Science degree, or clock hour program is not able to demonstrate entry-level skills expected by his or her first employer after graduation within the first six months of employment, the employer may request remediation of the specified skill deficiency at no cost to the employer or the employee. Pima staff, along with the employer, will identify the specific skill deficiency to be remedied and will develop an individualized training plan to be completed at the earliest possible timeframe amicable to the employer, the graduate and Pima Community College.

## Earning a Degree or Certificate

Earning a certificate or degree requires fulfilling all requirements defined below.

### Program Prerequisites

Prerequisites may be required before beginning some programs. Prerequisites are in place to make sure students have the skills and knowledge needed to be successful in the program. These courses may add a semester or more to the time needed to complete the certificate or degree. See an advisor or counselor for more information.

### Program Requirements

#### General Education Courses

General Education courses enhance the student's education and are required for graduation for all degrees and for certificates of 30 or more credits.

#### Core/Major Courses

Core/major courses provide in-depth knowledge and/or skills in the student's chosen field of study. Core/major courses are required and are listed by program in the certificates and degrees section of the catalog.

### Support/Elective Courses

Support/elective courses expand the knowledge and skills beyond the core/major requirements and are usually in subject areas different than the core/major courses.

## Graduation Requirements

In order to graduate from Pima Community College, a student must:

1. Apply for graduation within one year of completion of degree requirements. Students failing to do so must apply for an exception through the Office of the Registrar at the District Office and must complete a graduation application by the dates specified in this Catalog's academic calendar. Failure to complete the application by that date will result in a delay in processing until the following semester.
2. Complete the General Education requirements appropriate to the certificate or degree.
3. Complete the program core, support, and prerequisite requirements for the appropriate certificate or degree.
  - a. Complete a minimum of 60 credit hours of course work at the 100 level or higher for an associate degree. At least 15 semester credit hours of the total required to qualify for an Associates Degree must be earned at PCC.
  - b. Complete the college credit hours as defined in the certificate display within this catalog to earn a certificate. For certificates of 6 or more credit hours, at least 6 hours of the total required to qualify for a certificate must be earned at PCC. For certificates of less than 6 credits, all credits must be earned from PCC.
4. Complete the reading requirement, if specified for the appropriate certificate or degree.
5. Have a minimum overall 2.0 grade point average (GPA) on a 4.0 grade point scale.
6. Complete courses given the following rules regarding grades:
  - a. A "C" grade is required for general education and core courses.
  - b. "D" or "F" grades do not fulfill graduation requirements for any transfer degree (Associate of Arts, Associate of Science and the Associate of Business Administration) or AGECE.
  - c. A grade of "P" cannot be used for Arizona General Education Curriculum (AGECE) or any transfer degree (Associate of Arts, Associate of Science and the Associate of Business Administration).
  - d. A "D" grade can fulfill the requirement for support courses only in certificates, the Associate of Applied Arts, and the Associate of Applied Sciences.
7. Complete the learning outcomes assessment as part of the official graduation process if earning an associate degree.

### Graduation with Honors

Students who are graduating with a degree and who have completed 30 credit hours at Pima Community College may be granted honors designation if they meet certain grade point averages:

- 3.500 to 3.749 grade point average = Graduation with Honors
- 3.750 to 3.899 grade point average = Graduation with High Honors
- 3.900 to 4.000 grade point average = Graduation with Highest Honors

These designations will be shown on diplomas and listed on the student's official transcripts.

## Student's Catalog of Record (Catalog Under Which A Student Graduates)

Students maintaining continuous enrollment at any public Arizona community college or university may graduate according to the requirements of the catalog in effect at the time of initial enrollment or according to the requirements of any catalog in effect during subsequent terms of continuous enrollment. Students may maintain continuous enrollment whether attending a public community college and/or public university in the State of Arizona.

The rules for maintaining continuous enrollment are:

1. A semester in which a student earns course credit will be counted toward continuous enrollment.
2. Noncredit courses, audited courses, failed courses, or courses from which the student withdraws do not count toward continuous enrollment.
3. Failure to enroll in three consecutive regular (fall or spring) semesters breaks continuous enrollment for a student. Enrollment in the intervening summer terms may be used to maintain continuous enrollment status.

If continuous enrollment is not maintained, the student must meet the requirements for graduation of the catalog in effect at the time they re-enroll or any subsequent catalog of continuous enrollment. Students enrolling or re-enrolled during a summer term must follow the following fall catalog or any subsequent catalog of continuous enrollment.

## Time Limit for Coursework

In areas of study in which the subject matter changes rapidly, material in courses taken long before graduation may become obsolete or irrelevant. Coursework that is more than eight years old is applicable to completion of certificate and degree requirements at the discretion of the student's major department. Departments may accept such coursework, reject it, or request that the student revalidate its substance. The eight-year limit on coursework applies except when program accreditation agencies limit the life of coursework to less than eight years. Departments may also require students to satisfy current major requirements rather than major requirements in earlier catalogs, when completing earlier requirements is no longer possible or educationally sound. **There is no time limit for General Education Courses.**

## General Education Information

### The Value of General Education

General Education helps students to gain an understanding and appreciation of themselves; their history and culture; the history and culture of humanity; the principles and impact of mathematics, science and technology; and the principles of effective communication.

The process of general education is designed to develop the following thinking skills: comparing, interpreting, summarizing, suggesting and testing hypotheses, imagining and creating, criticizing and evaluating, designing projects and investigations, gathering and organizing data, reasoning, problem solving, and decision making.

### General Education Requirements by Certificate or Degree

The following list shows the minimum General Education credits needed for each type of degree program or certificate offered at Pima Community College. When considering which type of program is best for you, please note that if you intend to transfer to a university to com-

plete a bachelor's degree, the Associate of Arts (AA), Associate of Business Administration (ABUS), and the Associate of Science (AS) are the degrees designed for that purpose. The Associate of General Studies, Associate of Applied Arts (AAA), and the Associate of Applied Science (AAS) degrees require different General Education courses.

### Transfer Degrees

#### General Education Credits Needed

Associate of Arts (AA)	35
Associate of Business Administration (ABUS)	35
Associate of Science (AS)	35

### Not Intended for Transfer

#### General Education Credits Needed

#### Occupational Certificates:

Occupational Certificates of 30 or more credits	6
Occupational Certificates below 30 credits	0

#### Occupational Degrees:

Associate of Applied Arts (AAA)	19-21
Associate of Applied Science (AAS)	19-21

#### Associate of General Studies: 19-21

### Reading Requirement – Prerequisite for General Education

In order to enroll in General Education courses, the student must meet one of the following reading requirements.

- Test higher than REA 091 on PCC assessment
- Complete REA 091 with a "C" grade or higher
- Be concurrently enrolled in REA 091

Students whose assessment score places them in REA 081 can concurrently enroll in REA 081 and **one** general education course.



## General Education Requirements for Occupational Programs and the Associate of General Studies

This section covers the General Education requirements for the following certificates and degrees:

- Certificate for Direct Employment
- Associate of Applied Arts Degree (AAA)
- Associate of Applied Science Degree (AAS)
- Associate of General Studies Degree (AGS)

A general education course that is listed in more than one general education category may be applied to only **one** general education category. Some certificate and degree programs may require specific general education courses. These courses are listed in the degree display as shown in the "Educational Programs" section of this catalog.

### General Education Requirements for Certificates for Direct Employment

#### (30 Credit Hours or more)

Courses may not be used to complete more than one category.

Requirements	Credit Hours
Communication Requirement .....	3
Analysis and Critical Thinking Requirement .....	3
The mathematics competency requirement must be met.	
Total General Education Credit Hours .....	6

#### Communication Requirement (3 credits)

Choose 3 credit hours from the following list:

OAP 151  
JRN 101  
SPE 102  
SPE 120  
WRT 101 (or WRT 107)\*  
WRT 154

#### Analysis and Critical Thinking Requirement (3 credits)

Complete 3 credit hours from the categories listed below:

(Note: The mathematics competency requirement must be met.)

#### Mathematics Competency Requirement (0-3 credits)

The mathematics competency requirement can be met by:

1. Assessment – A score of 32 or above on the COMPASS Algebra test or ASSET Elementary Algebra test. See an advisor or counselor for verification of your assessment score.

OR

2. Course work – If the competency is **not** met by assessment, a minimum of 1 credit hour of course work from the Mathematics Category at the 100 level or higher is required.

Note: Students who meet the Mathematics Competency Requirement by assessment or by completing Mathematics Category course work with fewer than 3 credits are still required to complete a total of 3 credits from the Analysis and Critical Thinking Requirement.

#### Mathematics Category

Any mathematics (MAT) course at the 100 level or higher

GTM 105  
TEC 113

#### Science Category

Any course from the AGEC Biological/Physical Science List\*

MAC 275  
PHY 101

#### Critical Thinking Category

PHI 120  
REA 112  
STU 103 or STU 200  
TEC 101

### General Education Requirements for AAA, AAS and AGS Degrees:

Courses may not be used to complete more than one category.

Requirements	Credit Hours
Communication Requirement .....	6
Analysis and Critical Thinking Requirement .....	6
The Mathematics Competency Requirement must be met.	
Humanities; Social Science; Leadership and Ethics Requirement .....	6
Computer and Information Literacy Requirement .....	1-3
Total General Education Credits Required .....	19-21

One of the courses must meet either Cultural Diversity or Global Awareness criteria (C or G designation from the Arizona General Education Curriculum (AGEC) lists or a course from the Leadership and Ethics Category). The AGEC lists are found in the General Education Requirements for Transfer Programs following this section.

### General Education Course Lists for AAA, AAS and AGS Degrees

#### Communication Requirement (6 credits)

Choose one of the following pairs:

OAP 151 and OAP 251  
JRN 101 and SPE 120  
SPE 102 and WRT 154  
SPE 120 and WRT 154  
WRT 101 (or 107) and SPE 120  
WRT 101 (or 107) and WRT 102 (or 108)\*

#### Analysis and Critical Thinking Requirement (6 credits)

Complete 6 credit hours from the categories listed below.

(Note: The Mathematics Competency Requirement must be met).

At least one course must be completed from the Science or Critical Thinking Categories.

#### Mathematics Competency Requirement (0-3 credits)

The mathematics competency requirement can be met by:

1. Assessment-- A score of 32 or above on the COMPASS Algebra test or ASSET Elementary Algebra test. See an advisor or counselor for verification of your assessment score.

OR

2. Course work -- If the competency is **not** met by assessment, a minimum of 1 credit hour of course work from the Mathematics Category at the 100 level or higher is required.

Note: Students who meet the Mathematics Competency Requirement by assessment or by completing Mathematics Category course work with fewer than 3 credits are still required to complete a total of 6 credits from the Analysis and Critical Thinking Requirement.

\*Suggested for students who may transfer



**Mathematics Category**

Any mathematics (MAT) course at the 100 level or higher  
GTM 105  
TEC 113

**Science Category**

Any course from the AGEC Biological/Physical Science List\*  
MAC 275  
PHY 101

**Critical Thinking Category**

PHI 120  
REA 112  
STU 103\* or 200  
TEC 101

**Humanities; Social Science; Leadership and Ethics Requirement (6 credits)**

Courses must be completed from at least two of the following categories. *Students transferring to a university should choose courses from the AGEC lists.*

Courses may not be used to complete more than one of the categories listed below.

**Humanities and Fine Arts Category**

Any course from the AGEC Art list  
Any course from the AGEC Humanities list or LIT 174  
Any course from the AGEC Other Requirements Options:  
(c) Second Language list  
One of the following conversational language courses:  
FRE 106, 107; SPA 106, 107, 121, 122, 206; THO 106, 107.

**Social and Behavioral Science Category**

Any course from the AGEC Social and Behavioral Sciences list  
Any course from the AGEC Other Requirement Options: (d)  
International and Multicultural Studies list

**Leadership and Ethics Category**

Any course in this category meets the Cultural Diversity or Global Awareness requirement: BIO 250; BUS 148; STU 230

**Computer and Information Literacy Requirement (1-3 credits)**

Completion of certain degree programs automatically fulfills this requirement. See your program display. Otherwise choose a course from the list below:

AJS 165\* ; CAD 101; CIS 100; CSA 100, 101; FSC 189

\* No longer offered but will fulfill requirement.

## General Education Requirements for Transfer Programs

This section covers the General Education requirements for the following degrees:

- Associate of Arts Degree (AA)
- Associate of Business Administration Degree (ABUS)
- Associate of Science Degree (AS)

**Arizona General Education Curriculum (AGEC)**

The AGEC is a block of 35 or more credits that, when completed, can be transferred to another Arizona public community college or university to meet all lower-division General Education requirements for bachelor's degrees at Arizona's public universities (Arizona State University, Northern Arizona University, and the University of Arizona). The AGEC may also meet other universities' General Education program requirements. See an advisor or counselor for more information.

There are three forms of the AGEC: the AGEC-A for Associate of Arts degrees, the AGEC-B for the Associate of Business Administration degrees, and the AGEC-S for the Associate of Science degrees.

**AGEC-A:**

The AGEC-A may be applied to liberal arts university degree programs. See the Liberal Arts Associate of Arts Degree for Transfer in this catalog for more information on choice of major and see an advisor or counselor to establish a degree plan using a university transfer guide.

**AGEC-B:**

The AGEC-B may be applied to universities' business administration and public administration degree programs. See the Associate Degree in Business Administration (ABUS) for more information on this major and see an advisor or counselor to establish a degree plan and to be sure of the AGEC pathway. Also, an AGEC-B fulfills the requirements for an AGEC-A.

**AGEC-S:**

The AGEC-S may be applied to universities' science degree programs. See the Associate of Science Degree for Transfer in this catalog and see an advisor to establish a degree plan and to be sure of the AGEC pathway. Also, an AGEC-S fulfills the requirements for an AGEC-A or AGEC-B.

**If the AGEC is not completed before a student transfers to another community college or university:**

- The student cannot complete an AA, ABUS, or AS degree.
- The student may be required to take additional general education courses at the college or university.
- The credits will be evaluated individually by the college or university using the *Course Equivalency Guide* and accepted depending on the degree requirements

**AGEC Categorical Requirements**

AGEC-A, AGEC-B, and AGEC-S have the same categories and total number of credits, but differ in the number of credits required for each category, and the Mathematics, Biological & Physical Sciences, and/or Other Requirements courses required. The same course may not be used to complete more than one category.

**Students who complete an AGEC-A and then change their major and wish to apply the AGEC-A toward a degree program requiring the AGEC-B or AGEC-S, must complete the mathematics or science courses defined within that new degree program. However, the other general education categorical requirements of the degree are fulfilled by the AGEC-A.**

AGEC-A Categorical Requirements	Min Credit Hours
English Composition . . . . .	6
The combination of WRT 101 and 102 or WRT 107 and 108.	
Humanities and Fine Arts . . . . .	6-9
At least one course from the Art list and one course from the Humanities/Historical Perspectives list.	
Biological & Physical Sciences . . . . .	8
Any two courses and their labs from the Biological & Physical Sciences list.	
Mathematics . . . . .	3
MAT 142, MAT 144, MAT 151, or any MAT course above 151.	
Social & Behavioral Sciences . . . . .	6-9
Complete courses from at least two different prefixes in this category.	
Other Requirements . . . . .	0-6
Total AGEC-A General Education Credits Required: . . . . .	35

**AGEC-B Categorical Requirements** **Min Credit Hours**

See the Associate Degree in Business Administration (ABUS) for more information.

English Composition .....6  
The combination of WRT 101 and 102 or WRT 107 and 108.

Humanities and Fine Arts .....6  
One course from the Art list and one course from the Humanities/Historical Perspectives list.

Biological & Physical Sciences .....8  
Any two courses and their labs from the Biological & Physical Sciences list.

Mathematics .....3  
MAT 174 or MAT 212.

Social & Behavioral Sciences .....6  
Choose concentration 1 or 2:

1. Business Administration Concentration:  
ECN 201 or 202 and one additional non-ECN course from the Social & Behavioral Sciences list.

2. Public Administration Concentration:  
POS 202 and either ECN 201 or 202.

Other Requirements .....6  
CIS 100 and either MAT 172 or MAT 173.

Total AGECE-B General Education Credits Required: .....35

**AGEC-S Categorical Requirements** **Min Credit Hours**

English Composition .....6  
The combination of WRT 101 and 102 or WRT 107 and 108.

Humanities and Fine Arts .....6  
One course from the Art list and one course from the Humanities/Historical Perspectives list.

Biological & Physical Sciences .....8  
The combination of CHM 151&152 and their labs or PHY 210&216 and their labs.

Mathematics .....3  
MAT 220 or above.

Social & Behavioral Sciences .....6  
Complete courses from two different prefixes in this category.

Other Requirements .....6  
MAT courses above 220 and/or Science courses from the Biological and Physical Sciences list.

Total AGECE-S General Education Credits Required: .....35

**AGEC Special Requirements**

Students are required to take courses that meet each of the following:

- Intensive writing and critical inquiry (I)
- Cultural diversity highlighting ethnic, race, and/or gender awareness (C)
- Global diversity (G)

AGEC special requirements can be completed in one, two or three courses. Look for the AGECE special requirement code (I, C, and G) in the course lists below. To avoid exceeding the 35 credits required for the AGECE; the student should choose some courses that satisfy both the AGECE special requirements and the category requirements. For example, ANT 112 fulfills a category requirement of Humanities and Fine Arts and three AGECE special requirements: Intensive Writing and Critical Inquiry (I), Cultural Diversity (C), and Global Awareness (G). See an advisor or counselor for help in selecting courses.

**AGEC Special Requirement Legend**

- I** Satisfies Intensive Writing Special Requirement  
**C** Satisfies Cultural Diversity Special Requirement  
**G** Satisfies Global Awareness Special Requirement

**AGEC Categorical Requirement:****English Composition (6 credits)**

Complete two courses, either the combination of WRT 101 and 102 or WRT 107 and 108.

Course Number	Course Title	Credit Hours	AGEC Special Requirement
WRT 101	Writing I	3	
WRT 102	Writing II	3	
WRT 107	Writing I for Non-Native Speakers of English	3	
WRT 108	Writing II for Non-Native Speakers of English	3	
ZTR WR	AGEC Writing Equivalent	3	
ZTR WRI	AGEC Writing Equivalent	3	I
ZTR WRC	AGEC Writing Equivalent	3	C
ZTR WRG	AGEC Writing Equivalent	3	G
ZTR WRIC	AGEC Writing Equivalent	3	I,C
ZTR WRIG	AGEC Writing Equivalent	3	I,G
ZTR WRCG	AGEC Writing Equivalent	3	C,G
ZTR WRICG	AGEC Writing Equivalent	3	I,C,G

**AGEC Categorical Requirement:****Humanities and Fine Arts (6-9 credits)**

Complete at least one course from the Art list and at least one course from the Humanities list. Refer to the degree program to see if six or nine credits are needed from this category.

**Art List:**

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ART 100	Basic Design	3	
ART 105	Understanding Art	3	G
Art 106	History of Painting, Materials and Techniques (was ART 201)	3	
ART 110	Drawing I	3	
ART 115	Color and Composition	3	
ART 120	Sculptural Design	3	
ART 201*	Survey of Painting, Materials, and Techniques (now ART 106)	3	
DAR 250	Computer 2D Animation: Adobe After Effects	4	
DAR 251	Computer 3D Animation: Maya	4	
DAR 252	Digital Multimedia Design I	4	
MUS 102	Music Fundamentals	3	
MUS 108	Pima Jazz Band I	2	
MUS 109	Pima Jazz Band II	2	
MUS 111	Exploring Music Through Piano	3	
MUS 112	Community Jazz Band I	2	
MUS 113	Community Jazz Band II	2	
MUS 116	Pima CC Orchestra I	2	
MUS 117	Pima CC Orchestra II	2	
MUS 120	Concert Band I	3	

MUS 121	Concert Band II	3	
MUS 125†	Structure of Music	3	
MUS 127†	Aural Perception	2	
MUS 130	Chorale (SATB)	3	
MUS 131	College Singers (SATB)	3	
MUS 151	Exploring Music	3	
MUS 160	Popular Music in America	3	
THE 105	Theater Appreciation	3	C
WRT 205	Introduction to Poetry Writing	3	
WRT 206	Short Story Writing	3	
ZTR FA	AGEC Art Equivalent	3	
ZTR FAI	AGEC Art Equivalent	3	I
ZTR FAC	AGEC Art Equivalent	3	C
ZTR FAG	AGEC Art Equivalent	3	G
ZTR FAIC	AGEC Art Equivalent	3	I,C
ZTR FAIG	AGEC Art Equivalent	3	I,G
ZTR FACG	AGEC Art Equivalent	3	C,G
ZTR FAICG	AGEC Art Equivalent	3	I,C,G

† MUS 125 and MUS 127 together are equivalent to MUS 120A at the University of Arizona.

\* No longer offered, but will fulfill requirement.

#### Humanities List:

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ANT 112	Exploring Non-Western Cultures	3	I,C,G
ANT 135	Pre-Columbian Art	3	
ANT 148	History of Indians of North America	3	C,G
ANT 205	Intro to Southwestern Prehistory	3	C
ANT 206	Contemporary Native Americans of the Southwest	3	C
ARC 205	Intro to Southwestern Prehistory	3	C
ART 130	Art and Culture: Prehistory through Gothic	3	I,G
ART 131	Art and Culture: Gothic through Modern Periods	3	I,G
ART 134	Arts of Diverse Cultures	3	G
ART 135	Pre-Columbian Art	3	
DES 213*	History of Interior Architecture and Furniture from 1900-present (Now IDE 213)		
HIS 101	Intro to Western Civilization I	3	I,G
HIS 102	Intro to Western Civilization II	3	I,G
HIS 113	Chinese Civilization	3	G
HIS 114	Japanese Civilization	3	G
HIS 122	Tohono O'odham History/Culture	3	I,C,G
HIS 124	History/Culture of the Yaqui People	3	C,G
HIS 135	Pre-Columbian Art	3	
HIS 141	History of the United States I	3	C,G
HIS 142	History of the United States II	3	C,G
HIS 148	History of Indians of North America	3	C,G
HIS 160	Latin America Before Independence	3	I,C,G
HIS 161	Modern Latin America	3	I,C,G
HIS 170	History and People of Africa	3	G
HIS 274	The Holocaust	3	G
HIS 277	History of the Middle East: From the Rise of Islam to 1453	3	G
HIS 278	History of the Middle East: From 1453 to the Present Age	3	G
HUM 110*	Humanities I	3	I

HUM 111*	Humanities II	3	I
HUM 251	Western Humanities I	3	I,G
HUM 252	Western Humanities II	3	I,G
HUM 253	Western Humanities III	3	I,C,G
HUM 260	Intercultural Perspectives	3	I,C
IDE 213	(was DES 213) History of Interior Architecture and Furniture from 1900-Present	3	G
LIT 224*	Southwestern Literature	3	I,C
LIT 231	Introduction to Shakespeare	3	I
LIT 240	American Literature of Opposition	3	I,C
LIT 260	Major British Writers	3	I
LIT 261	Modern Literature	3	I,C,G
LIT 265	Major American Authors	3	I
LIT 266	World Drama	3	I,G
LIT 267	World Literature: Narrative	3	I,G
LIT 268*	Introduction to the Literature of the Americas	3	I
LIT 274	Native American Literature	3	I,C
LIT 288*	Politics and the Novel	3	I
LIT 289	Literature and Film	3	I
MUS 151	Exploring Music	3	
MUS 160	Popular Music in America	3	
MUS 201	History and Literature of Music I	3	
MUS 202	History and Literature of Music II	3	
PHI 101	Introduction to Philosophy	3	
PHI 122	God, Mind, and Matter	3	
PHI 123	Philosophical Foundations of Science	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	
PHI 140	Philosophy of Religion	3	
REL 130	Asian Religions	3	G
REL 140	Philosophy of Religion	3	
REL 200	Religion in Popular Culture	3	C
REL 220	Old Testament	3	
REL 221	New Testament	3	
REL 234	Islam	3	G
REL 273	Judaism	3	C
THE 140	History of Theater to the 18th Century	3	
THE 141	History of Theater Since the 18th Century	3	
UAT 101(**)	Traditions and Cultures I	3	
UAT 102(**)	Traditions and Cultures II	3	
UAT 103(**)	Traditions and Cultures III	3	
UAT 104(**)	Traditions and Cultures IV	3	
ZTR HU	AGEC Humanities Equivalent	3	
ZTR HUI	AGEC Humanities Equivalent	3	I
ZTR HUC	AGEC Humanities Equivalent	3	C
ZTR HUG	AGEC Humanities Equivalent	3	G
ZTR HUIC	AGEC Humanities Equivalent	3	I,C
ZTR HUIG	AGEC Humanities Equivalent	3	I,G
ZTR HUCG	AGEC Humanities Equivalent	3	C,G
ZTR HUICG	AGEC Humanities Equivalent	3	I,C,G

\* No longer offered, but will fulfill requirement.

\*\* UAT 101, 102, 103, and 104 are PCC course equivalencies of UA TRAD 101, 102, 103, and 104, Tier 1 Traditions and Culture courses that fulfill Humanities List requirements



**AGEC Categorical Requirement:****Biological and Physical Sciences (8 credits)**

Complete two courses with their labs. See your degree display for selection of the courses.

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ANT 104/ 105† or ANT 105/ 105LB	Humanity and the Environment	4	I
AST 101/ 101LB or AST 101IN	Solar System	4	
AST 102/ 102LB or AST 102IN	Stars, Galaxies, Universe	4	
AST 105/ 105LB or AST 105IN	Life in the Universe	4	
BIO 100IN	Biology Concepts	4	
BIO 104IN	Animal Sexual Behavior	4	
BIO 105IN	Environmental Biology	4	
BIO 108IN	Plants, People and Culture	4	G
BIO 109IN	Natural History of the Southwest	4	
BIO 115IN	Wildlife of North America	4	
BIO 121IN	Current Issues in Human Biology	4	
BIO 127IN	Human Nutrition and Biology	4	I
BIO 156IN	Introductory Biology for Allied Health	4	
BIO 160IN	Introduction to Human Anatomy and Physiology	4	
BIO 181IN	General Biology (Majors) I	4	
BIO 182IN	General Biology (Majors) II	4	
BIO 183IN	Marine Biology	4	
BIO 184IN	Plant Biology	4	
BIO 187IN	Introduction to Biological Research	4	
BIO 201IN	Human Anatomy/Physiology I	4	
BIO 202IN	Human Anatomy/Physiology II	4	
BIO 205IN	Microbiology	4	
CHM 121/ 121LB or CHM 121IN	Chemistry and Society I	4	
CHM 122/ 122LB or CHM 122IN	Chemistry and Society II	4	
CHM 130/ 130LB or CHM 130IN	Fundamental Chemistry	5	
CHM 140/ 140LB or CHM 140IN	Fundamental Organic and Biochemistry	5	
CHM 151/ 151LB or CHM 151IN	General Chemistry I	5	
CHM 152/ 152LB or CHM 152IN	General Chemistry II	5	
CHM 235/ 235LB or CHM 235IN	General Organic Chemistry I	5	

CHM 236/ 236LB or CHM 236IN	General Organic Chemistry II	5	
ENV 104/105† or ENV 105/ 105LB	Humanity and the Environment	4	I
FSN 127IN	Human Nutrition and Biology	4	I
GEO 101	Physical Geography: Weather and Climate	4	
GEO 102	Physical Geography: Land Forms and Oceans	4	
GLG 101IN	Introductory Geology I: Physical Geology	4	
GLG 102IN	Introductory Geology II: Historic Geology	4	
GLG 140IN	Introduction to Oceanography	4	
PHY 115/ 115LB*	Physical Science	4	
PHY 121/ 121LB or PHY 121IN	Introductory Physics I	5	
PHY 122/ 122LB or PHY 122IN	Introductory Physics II	5	
PHY 210/ 210LB or PHY 210IN	Introductory Mechanics	5	
PHY 216/ 216LB or PHY 216IN	Introductory Electricity and Magnetism	5	
PHY 221/ 221LB	Introduction to Waves and Heat	4	
ZTR BP	AGEC Science Equivalent	3	
ZTR BPI	AGEC Science Equivalent	3	I
ZTR BPC	AGEC Science Equivalent	3	C
ZTR BPG	AGEC Science Equivalent	3	G
ZTR BPIC	AGEC Science Equivalent	3	I,C
ZTR BPIG	AGEC Science Equivalent	3	I,G
ZTR BPCG	AGEC Science Equivalent	3	C,G
ZTR BPICG	AGEC Science Equivalent	3	I,C,G

† ANT/ ENV 104 and 105 must both be taken in order to transfer.

\* No longer offered, but will fulfill requirement.

**AGEC Categorical Requirement:****Mathematics (3 credits)**

Complete three credits. The AGECE-A requires MAT 142 or above. The AGECE-B requires MAT 212 or above. The AGECE-S requires MAT 220 or above. See the degree display for the selection of the appropriate course.

Course Number	Course Title	Credit Hours	AGEC Special Requirement
BUS 205	Statistical Methods in Economics and Business	3	
MAT 142	Topics in College Mathematics	3	
MAT 144*	College Algebra with Data Analysis	4	
MAT 151	College Algebra	4	
MAT 167	Introductory Statistics	3	
MAT 172	Finite Mathematics	3	
MAT 173*	Mathematics for Business I	3	

MAT 174*	Mathematics for Business II	3	
MAT 182	Trigonometry	3	
MAT 187	Precalculus	5	
MAT 212	Topics in Calculus	3	
MAT 220	Calculus I	5	
MAT 227	Discrete Mathematics in Computer Science	4	
MAT 231	Calculus II	4	
MAT 241	Calculus III	4	
MAT 252	Introduction to Linear Algebra	3	
MAT 262	Differential Equations	3	
ZTR MA	AGEC Math Equivalent	3	
ZTR MAI	AGEC Math Equivalent	3	I
ZTR MAC	AGEC Math Equivalent	3	C
ZTR MAG	AGEC Math Equivalent	3	G
ZTR MAIC	AGEC Math Equivalent	3	I,C
ZTR MAIG	AGEC Math Equivalent	3	I,G
ZTR MACG	AGEC Math Equivalent	3	C,G
ZTR MAICG	AGEC Math Equivalent	3	I,C,G

\* Course has a business emphasis

### AGEC Categorical Requirement:

#### Social and Behavioral Sciences (6-9 credits)

Complete courses in at least two subject areas (at least two course prefixes). Refer to the degree plan to see if six or nine credits are needed from this category.

Course Number	Course Title	Credit Hours	AGEC Special Requirement
AIS 101	Intro. to American Indian Studies I	3	
ANT 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology/Linguistics	3	G
ANT 110	Buried Cities and Lost Tribes	3	
ANT 112	Exploring Non-Western Cultures	3	I,C,G
ANT 127	History and Culture of the Mexican-American in the SW	3	I,C,G
ANT 150	African-American History/People	3	C
ANT 202	Sex, Gender, and Culture	3	C
ANT 205	Intro to Southwestern Prehistory	3	C
ANT 206	Contemporary Native Americans of the Southwest	3	C
ANT 210	Cultural Anthropology	3	I,G
APA 200	Contemporary Issues in Asian American Society	3	C
ARC 101	Human Origins and Prehistory	3	
ARC 110	Buried Cities and Lost Tribes	3	
ARC 205	Intro to Southwestern Prehistory	3	C
ECN 200	Basic Economic Principles	3	
ECN 201	Microeconomic Principles	3	
ECN 202	Macroeconomic Principles	3	
GEO 103	Cultural Geography	3	G
GEO 104	World Regional Geography	3	G
GEO 250	Intro to Medical Geography	3	G
HIS 101	Intro to Western Civilization I	3	I,G
HIS 102	Intro to Western Civilization II	3	I,G
HIS 105	Intro to Chicano Studies	3	I,C,G
HIS 113	Chinese Civilization	3	G
HIS 114	Japanese Civilization	3	G
HIS 122	Tohono O'odham History/Culture	3	I,C,G
HIS 124	History/Culture of the Yaqui People	3	C,G

HIS 127	History /Culture of the Mexican-American in the Southwest	3	I,C,G
HIS 141	History of the United States I	3	C,G
HIS 142	History of the United States II	3	C,G
HIS 147	History of Arizona	3	C
HIS 148	History of Indians of North America	3	C,G
HIS 150	African-American History and People	3	C
HIS 160	Latin America Before Independence	3	I,C,G
HIS 161	Modern Latin America	3	I,C,G
HIS 170	History/People of Africa	3	G
HIS 180	Women in Western History	3	C
HIS 253	History of Women in the United States: Early America	3	C
HIS 254	History of Women in the United States: The 20th Century	3	C
HIS 274	The Holocaust	3	G
HIS 284	Modern Israel and Arab/Israeli Relations	3	G
HUM 260	Intercultural Perspectives	3	I,C
JRN 102	Survey of Media Communications	3	G
PHI 101	Introduction to Philosophy	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	
PHI 140	Philosophy of Religion	3	
POS 100	Introduction to Politics	3	
POS 110*	American National Government and Politics (now POS 201)	3	C
POS 120*	Intro to International Relations (now POS 202)	3	G
POS 130*	American State and Local Governments and Politics (now POS 231)	3	C
POS 140*	Intro to Comparative Politics (now POS 204)	3	C,G
POS 160*	Intro to Political Ideas (now POS 203)	3	
POS 201	American National Government and Politics (was POS 110)	3	C
POS 202	Intro to International Relations (was POS 120)	3	G
POS 203	Introduction to Political Ideas (was POS 160)	3	
POS 204	Intro to Comparative Politics (was POS 140)	3	C,G
POS 210	National and State Constitutions (was POS 220)	3	
POS 220*	National and State Constitutions (now POS 210)	3	
POS 231	American State and Local Governments and Politics	3	C
PSY 100A	Psychology I	3	
PSY 100B	Psychology II	3	
PSY 101	Introduction to Psychology	4	
PSY 132	Psychology and Culture	3	G
PSY 210	Introduction to Biopsychology	3	
PSY 215	Human Sexuality	3	C,G
PSY 216	Psychology of Gender	3	C
PSY 218	Health Psychology	3	
PSY 230	Psychological Measurements and Statistics	3	
PSY 250	Introduction to Social Psychology	3	
PSY 265	Normal Personality	3	

**Social and Behavioral Sciences (continued)**

Course Number	Course Title	Credit Hours	AGEC Special Requirement
REL 140	Philosophy of Religion	3	
REL 200	Religion in Popular Culture	3	C
REL 220	Old Testament	3	
REL 221	New Testament	3	
REL 234	Islam	3	G
SOC 101	Introduction to Sociology	3	C
SOC 103	Explorations in Prejudice	3	C
SOC 110	Intro to Cities and Global Society	3	G
SOC 120	Current Social Problems	3	C,G
SOC 201	Race, Ethnicity, Minority Groups and Social Justice	3	C
SOC 203	Sociology of Utopia	3	I,G
SOC 204	Gender Identities, Interaction, and Relations	3	C
SOC 215	Human Sexuality	3	C,G
SOC 273	Sociology of Sport	3	C
SSE 110	Introduction to Social Welfare	3	
UAI 101(***)	Individuals and Societies I	3	
UAI 102(***)	Individuals and Societies II	3	
UAI 103(***)	Individuals and Societies III	3	
UAI 104(***)	Individuals and Societies IV	3	
ZTR SB	AGEC Social and Behavioral Sciences Equivalent	3	
ZTR SBI	AGEC Social and Behavioral Sciences Equivalent	3	I
ZTR SBC	AGEC Social and Behavioral Sciences Equivalent	3	C
ZTR SBG	AGEC Social and Behavioral Sciences Equivalent	3	G
ZTR SBIC	AGEC Social and Behavioral Sciences Equivalent	3	I,C
ZTR SBIG	AGEC Social and Behavioral Sciences Equivalent	3	I,G
ZTR SBCG	AGEC Social and Behavioral Sciences Equivalent	3	C,G
ZTR SBICG	AGEC Social and Behavioral Sciences Equivalent	3	I,C,G

\* No longer offered, but will fulfill requirement.

\*\*\* UAI 101, 102, 103, and 104 are PCC course equivalencies of UA INDV 101, 102, 103, and 104. Note: INDV courses (up to two courses for six credits) may fulfill Social and Behavioral Sciences requirements. It is assumed the two INDV courses are of two different prefixes. INDV courses do not fulfill I, C, or G requirements.

**AGEC Categorical Requirement:****Other Requirement Options (0-6 credits)**

Refer to the degree display to see how many credits are needed from this category.

**a) Oral Communication**

Course Number	Course Title	Credit Hours	AGEC Special Requirement
SPE 102	Intro to Speech Communication	3	C
SPE 110	Public Speaking	3	C
SPE 120	Business/Professional Comm.	3	C,G
SPE 130	Small Group Discussion	3	
SPE 136	Oral Interpretation of Literature	3	
ZTR SP	AGEC Speech Equivalent	3	
ZTR SPI	AGEC Speech Equivalent	3	I
ZTR SPC	AGEC Speech Equivalent	3	C
ZTR SPG	AGEC Speech Equivalent	3	G
ZTR SPIC	AGEC Speech Equivalent	3	I,C
ZTR SPIG	AGEC Speech Equivalent	3	I,G
ZTR SPCG	AGEC Speech Equivalent	3	C,G
ZTR SPICG	AGEC Speech Equivalent	3	I,C,G

**b) Computer Science, Critical Thinking, Logic, Mathematics or Science:**

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	G
BUS 148	Ethics in the Workplace	3	
CIS 100	Introduction to Computers	3	
CIS 140	FORTAN Programming	3	
CIS 160*	Cobol Programming	3	
FSN 154	Nutrition	3	
GLG 110	Geological Disasters and Environmental Geology	3	
MAT	Any Mathematics course numbered 142,144 or 151 and above		
PHI 120	Introduction to Logic	3	
PHI 123	Philosophical Foundations of Science		3
PHY 230	Introduction to Modern Physics	3	
POS 100	Introduction to Politics	3	
Science	Any Science course listed under Biological and Physical Sciences		
SSE 154	Nutrition	3	
ZTR CS	AGEC Computer Science Equivalent	3	
ZTR CSI	AGEC Computer Science Equivalent	3	I
ZTR CSC	AGEC Computer Science Equivalent	3	C
ZTR CSG	AGEC Computer Science Equivalent	3	G
ZTR CSIC	AGEC Computer Science Equivalent	3	I,C
ZTR CSIG	AGEC Computer Science Equivalent	3	I,G
ZTR CSCG	AGEC Computer Science Equivalent	3	C,G
ZTR CSICG	AGEC Computer Science Equivalent	3	I,C,G
ZTR LO	AGEC Logic Equivalent	3	
ZTR LOI	AGEC Logic Equivalent	3	I
ZTR LOC	AGEC Logic Equivalent	3	C
ZTR LOG	AGEC Logic Equivalent	3	G
ZTR LOIC	AGEC Logic Equivalent	3	I,C
ZTR LOIG	AGEC Logic Equivalent	3	I,G
ZTR LOCG	AGEC Logic Equivalent	3	C,G
ZTR LOICG	AGEC Logic Equivalent	3	I,C,G

\* No longer offered, but will fulfill requirement.



c) Second Language:

Course Number	Course Title	Credit Hours	AGEC Special Requirement
APC 101	Apache Language I	4	
APC 102	Apache Language II	4	
ARB 101	Elementary Modern Standard Arabic I	5	
ARB 102	Elementary Modern Standard Arabic II	5	
CHI 101	Elementary Chinese (Mandarin) I	5	
CHI 102	Elementary Chinese (Mandarin) II	5	
CHI 201	Intermediate Chinese (Mandarin) I	5	G
CHI 202	Intermediate Chinese (Mandarin) II	5	G
FRE 101	Elementary French I	4	
FRE 102	Elementary French II	4	
FRE 201	Intermediate French I	4	G
FRE 202	Intermediate French II	4	G
GER 101	Elementary German I	4	
GER 102	Elementary German II	4	
GER 201	Intermediate German I	4	G
GER 202	Intermediate German II	4	G
GRK 101	Elementary Modern Greek I	4	
GRK 102	Elementary Modern Greek II	4	
GRK 201	Intermediate Modern Greek I	4	G
GRK 202	Intermediate Modern Greek II	4	G
HEB 101	Elementary Modern Hebrew I	4	
HEB 102	Elementary Modern Hebrew II	4	
HEB 201	Intermediate Modern Hebrew I	4	G
HEB 202	Intermediate Modern Hebrew II	4	G
ITA 101	Elementary Italian I	4	
ITA 102	Elementary Italian II	4	
ITA 201	Intermediate Italian I	4	G
ITA 202	Intermediate Italian II	4	G
JPN 101	Elementary Japanese	5	
JPN 102	Elementary Japanese II	5	
JPN 201	Intermediate Japanese I	5	G
JPN 202	Intermediate Japanese II	5	G
LAT 101	Elementary Latin I	4	
LAT 102	Elementary Latin II	4	
LAT 201	Intermediate Latin I	4	
LAT 202	Intermediate Latin II	4	
POR 101	Elementary Portuguese I	4	
POR 102	Elementary Portuguese II	4	
POR 201	Intermediate Portuguese I	4	G
POR 202	Intermediate Portuguese II	4	G
RUS 101	Elementary Russian I	4	
RUS 102	Elementary Russian II	4	
RUS 201	Intermediate Russian I	4	G
RUS 202	Intermediate Russian II	4	G
SLG 101	American Sign Language I	4	
SLG 102	American Sign Language II	4	
SLG 201	American Sign Language III	4	
SLG 202	American Sign Language IV	4	
SPA 101	Elementary Spanish I	4	
SPA 102	Elementary Spanish II	4	
SPA 103	Beginning Spanish for Spanish Speakers	4	G
SPA 104*	Spanish for Spanish Speakers II	4	G
SPA 201	Intermediate Spanish I	4	G
SPA 202	Intermediate Spanish II	4	G

SPA 203	Writing and Oral Skills for Spanish Speakers	4	G
SPA 253	Intermediate Spanish for Spanish Speakers	4	G
THO 101	Elementary Tohono O'odham I	4	G
THO 102	Elementary Tohono O'odham II	4	G
YAQ 101	Elementary Yaqui I	4	G
YAQ 102	Elementary Yaqui II	4	G
ZTR LA	AGEC Language Equivalent	3	
ZTR LAI	AGEC Language Equivalent	3	I
ZTR LAC	AGEC Language Equivalent	3	C
ZTR LAG	AGEC Language Equivalent	3	G
ZTR LAIC	AGEC Language Equivalent	3	I,C
ZTR LAIG	AGEC Language Equivalent	3	I,G
ZTR LACG	AGEC Language Equivalent	3	C,G
ZTR LAICG	AGEC Language Equivalent	3	I,C,G

\* No longer offered, but will fulfill requirement.

d) International and Multi-Cultural Studies:

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	G
ANT 112	Exploring Non-Western Cultures	3	I,C,G
ANT 127	History and Culture of the Mexican-American in the SW	3	I,C,G
ANT 148	History of Indians of North America	3	C,G
ANT 150	African-American History and People	3	C
ANT 202	Sex, Gender, and Culture	3	C
ANT 205	Intro to Southwestern Prehistory	3	C
ANT 206	Contemporary Native Americans of the Southwest	3	C
ANT 210	Cultural Anthropology	3	I,G
APA 200	Contemporary Issues in Asian American Society	3	C
ARC 205	Intro to Southwestern Prehistory	3	C
ART 105	Understanding Art	3	G
ART 130	Art and Culture: Prehistory to Gothic	3	I,G
ART 131	Art and Culture: Late Gothic to Modern Periods	3	I,G
ART 134	Art of Diverse Cultures	3	G
BIO 108IN	Plants, People and Culture	4	G
BIO 250	Biomedical Ethics	3	G
BUS 210	International Business	3	G
DES 213*	History of Interior Architecture and Furniture from 1900-Present (now IDE 213)		
GEO 103	Cultural Geography	3	G
GEO 104	World Regional Geography	3	G
GEO 250	Intro to Medical Geography	3	G
HIS 101	Intro to Western Civilization I	3	I,G
HIS 102	Intro to Western Civilization II	3	I,G
HIS 105	Intro to Chicano Studies I	3	I,C,G
HIS 113	Chinese Civilization	3	G
HIS 114	Japanese Civilization	3	G
HIS 115	Civilization of India	3	G
HIS 122	Tohono O'odham History/Culture	3	I,C,G
HIS 124	History/Culture of the Yaqui People	3	C,G
HIS 127	History/Culture of the Mexican-American in the Southwest	3	I,C,G

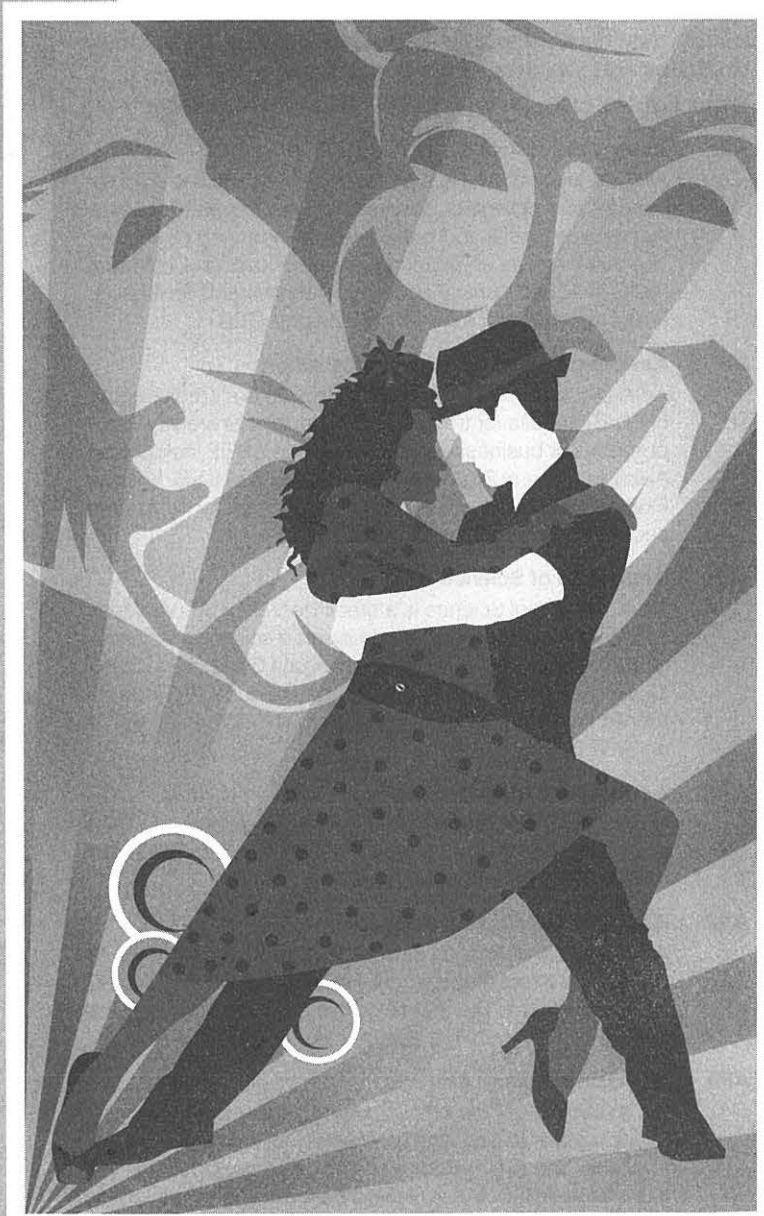
d) International and Multi-Cultural Studies (continued):

Course Number	Course Title	Credit Hours	AGEC Special Requirement
HIS 141	History of the United States I	3	C,G
HIS 142	History of the United States II	3	C,G
HIS 147	History of Arizona	3	C
HIS 148	History of Indians of North America	3	C,G
HIS 150	African American History/People	3	C
HIS 160	Latin America Before Independence	3	I,C,G
HIS 161	Modern Latin America	3	I,C,G
HIS 170	History/People of Africa	3	G
HIS 180	Women in Western History	3	C
HIS 244	Western America	3	C
HIS 253	History of Women in the United States: Early America	3	C
HIS 254	History of Women in the United States: The 20 <sup>th</sup> Century	3	C
HIS 274	The Holocaust	3	G
HIS 277	History of the Middle East: From the Rise of Islam to 1453	3	G
HIS 278	History of the Middle East: From 1453 to the Present Age	3	G
HIS 284	Modern Israel and Arab/Israeli Relations	3	G
HUM 251	Western Humanities I	3	I,G
HUM 252	Western Humanities II	3	I,G
HUM 253	Western Humanities III	3	I,C,G
HUM 260	Intercultural Perspectives	3	I,C
IDE 213	History of Interior Architecture and Furniture from 1900 to Present (was DES 213)	3	G
JPN 245	Japanese Culture and Communication	3	G
JRN 102	Survey of Media Communications	3	G
LIT 224*	Southwestern Literature	3	I,C
LIT 240	American Literature of Opposition	3	I,C
LIT 261	Modern Literature	3	I,C,G
LIT 266	World Drama	3	I,G
LIT 267	World Literature: Narrative	3	I,G
LIT 274	Native American Literature	3	I,C
POS 110*	American National Government and Politics (now POS 201)	3	C
POS 120*	Intro to International Relations (now POS 202)	3	G
POS 130*	American State and Local Governments and Politics (now POS 231)	3	C
POS 140	Intro to Comparative Politics (now POS 204)	3	C,G
POS 201	American National Government and Politics (was POS 110)	3	C
POS 202	Introduction to International Relations (was POS 120)	3	G
POS 204	Introduction to Comparative Politics (was POS 140)	3	C,G

POS 230	Minority Groups and the Political Process	3	C
POS 231*	American State and Local Governments and Politics (was POS 130)	3	C
PSY 132	Psychology and Culture	3	G
PSY 215	Human Sexuality	3	C,G
PSY 216	Psychology of Gender	3	C
REL 119	Judaism, Christianity and Islam	3	G
REL 130	Asian Religions	3	G
REL 200	Religion in Popular Culture	3	C
REL 234	Islam	3	G
REL 273	Judaism	3	C
REL 275	Native American Worldviews	3	C
SOC 101	Introduction to Sociology	3	C
SOC 103*	Explorations in Prejudice	3	C
SOC 110	Intro to Cities and Global Society	3	G
SOC 120	Current Social Problems	3	C,G
SOC 201	Race, Ethnicity, Minority Groups and Social Justice	3	C
SOC 203	Sociology of Utopia	3	I,G
SOC 204	Identities, Interaction, and Relations	3	C
SOC 215	Human Sexuality	3	C,G
SOC 273	Sociology of Sport	3	C
THE 105	Theater Appreciation	3	C
ZTR MC	AGEC Multicultural Equivalent	3	
ZTR MCI	AGEC Multicultural Equivalent	3	I
ZTR MCC	AGEC Multicultural Equivalent	3	C
ZTR MCG	AGEC Multicultural Equivalent	3	G
ZTR MCIC	AGEC Multicultural Equivalent	3	I,C
ZTR MCIG	AGEC Multicultural Equivalent	3	I,G
ZTR MCCG	AGEC Multicultural Equivalent	3	C,G
ZTR MCICG	AGEC Multicultural Equivalent	3	I,C,G

\* No longer offered, but will fulfill requirement.

# Educational Programs, Degrees and Certificates





## Degrees and Certificates

The current educational programs are listed below with the name of the degree or certificate, the award type, and the program code. The program code is the identifier students use to declare their program of study. If a student is uncertain about which code to use or for information on programs without program codes, please see an advisor or counselor.

There is an additional column entitled Lead Campus in the Occupational Program list. The lead campus is the only campus to offer all courses required for the certificate or degree. Other campuses may offer only introductory course(s) for the certificate or degree. Check the *Schedule of Classes* for the courses offered on each campus and see an advisor or counselor.

Although the Transfer Programs do not have a lead campus, transfer program's core/major courses and some general education courses may not be offered on every campus. Check the *Schedule of Classes* and see an advisor or counselor.

The definitions of the abbreviations in the Award column are:

### **AA Associate of Arts**

An Associate of Arts is a credit degree of 60-64 credits for transfer to a college or university into majors related to arts, humanities, social and behavioral science, and education. The AA includes an Arizona General Education Curriculum (AGEC)-A. See General Education Requirements for Transfer Program section for more information on AGECE.

### **ABUS Associate of Business Administration**

An Associate of Business Administration is a credit degree of 60-64 credits for transfer to a college or university into a business or business-related major. The ABUS includes an Arizona General Education Curriculum (AGEC)-B. See the General Education Requirements for Transfer Programs section for more information on AGECE.

### **AS Associate of Science**

An Associate of Science is a credit degree of 60-64 credits for transfer to a college or university into a science or science-related major. The AS includes an Arizona General Education Curriculum (AGEC)-S. See the General Education Requirements for Transfer Programs section for more information on AGECE.

### **AAA Associate of Applied Arts**

An Associate of Applied Arts is a credit degree of 60-72 credits for direct employment into jobs requiring some art-related skills and competencies.

### **AAS Associate of Applied Science**

An Associate of Applied Science is a credit degree of 60-72 credits for direct employment into jobs requiring skills and competencies in the technologies, business, government and public service, and health-related professions.

### **AFA Associate of Fine Arts**

An Associate of Fine Arts is a credit degree of 60-64 credits for transfer to a college or university into majors related to fine arts. The AFA includes an Arizona General Education Curriculum AGECE-A. See General Education Requirements for Transfer Program section for more information on AGECE.



### **AGS Associate of General Studies**

An Associate of General Studies is a credit degree of 60-72 credits designed by the student. If planning to seek employment or to transfer, the student should develop a plan of study with an advisor or counselor.

### **CERT Certificate**

A Certificate is a credit certificate in a specific field of study of less than 60 credits for direct employment into a job or for transfer to a college or university.

### **CERA Post-Degree Certificate**

A Post-Degree Certificate is a credit certificate in a specific field of study of less than 60 credits for direct employment into a job. An Associate's Degree or a Bachelor's Degree (depending on the program) is required before beginning a Post-Degree Certificate. See program display for specific requirements.

### **CTD Certificate of Completion**

A Certificate of Completion is a non-credit certificate in a specific field of study for direct employment into a job. The program is a clock-hour program rather than a credit program, only offered at the Center for Training and Development located at the Desert Vista Campus.

## Credit Degrees and Certificates

There are three lists of credit certificates and degrees:

- General Studies Programs (AGS)
- Occupational Programs (CERT, CERA, AAA, and AAS)
- Transfer Programs (CERT, AA, ABUS, and AS)

Campus legend:

- CC = Community Campus
- DVC = Desert Vista Campus
- DC = Downtown Campus
- EC = East Campus
- NW = Northwest Campus
- WC = West Campus

## Occupational Programs

Major Program Concentration	Award	Program / Concentration Code	Lead Campus*
<b>Accounting</b>			
Accounting	CERT	CRTACCOUNTIN	WC
Accounting	AAS	AASACCOUNTIN	WC
<b>Administration of Justice Studies</b>			
Administration of Justice Studies	AAS	AASADMINJUST	EC
<b>Applied Arts</b>			
Applied Arts	AAA	AAAAPPLDARTS	WC
<b>Archaeology</b>			
Field Archaeology	CERT	CRTFLDARCHEO	WC
<u>Concentrations:</u> Artifact Fundamentals Field Methods Computer Archaeology and Cartography Southwestern Cultures		ARCA ARCM  ARCP ARCS	
<b>Automotive Technology</b>			
Automotive Mechanics	CERT	CRTAUTOMECHS	DC
Automotive Technology	AAS	AASAUTOTECHN	DC
<b>Aviation Technology</b>			
Advanced Aviation Technology	CERT	CRTAVIATIONA	DV
<u>Concentrations:</u> General Mechanics Airframe Mechanics Powerplant Aviation Structural Repair		AVMG AVMF AVMP AVMS	
Aviation Technology	AAS	AASAVIATION	DV
<u>Concentrations:</u> Airframe and Powerplant Structural Repair		AVMA AVMS	
<b>Biotechnology</b>			
Biotechnology	CERT	CRTBIOTECH	WC
<b>Building and Construction Technologies</b>			
Basic Building & Construction Technologies	CERT	CRTBLDGCON-B	DC
Advanced Building & Construction Technologies	CERT	CRTBLDGCON-A	DC
<u>Concentrations:</u> Carpentry Electrical Facilities Maintenance Heating, Ventilation, Air Conditioning, & Refrigeration (HVAC-R) Plumbing		BCTC BCTE BCTF  BCTH BCTP	
Building & Construction Technologies	AAS	AASBLDGCONST	DC
<u>Concentrations:</u> Building Management Carpentry Electrical Facilities Maintenance Heating, Ventilation, Air Conditioning, & Refrigeration (HVAC-R) Construction Management Plumbing		BCTB BCTC BCTE BCTF  BCTH BCTM BCTP	

Major Program Concentration	Award	Program / Concentration Code	Lead Campus*
<b>Business</b>			
Basic Business	CERT	CRTBUSINES-B	EC
Advanced Business	CERT	CRTBUSINES-A	EC
Business	AAS	AASBUSINESS	EC
<u>Concentrations:</u> Marketing Management Tourism		BUSK BUSM BUST	
<b>Child Development Associate</b> See Education			
<b>Computer Aided Drafting Technology</b>			
Computer Aided Drafting Basic	CERT	CRTCONDRFT-B CADB	DC
Computer Aided Drafting Advanced	CERT	CRTCONDRFT-A CADA	DC
Computer Aided Drafting	AAS	AASELECMECHN	DC
<u>Concentrations:</u> Mechanical/Electro-Mechanical Construction		DFTA DFTC	
<b>Computer Information Systems</b>			
Computer Programmer Specialist	CERT	CRTCMPPRGSP	WC
<u>Concentrations:</u> Programming in "C" Programming in Visual Basic Programming for the Web		CSPC CSPV CSPW	
Computer Programmer/Analyst Analyst	AAS	AASCMPPRGANL CSPA	WC
iCarnegie Computer Programming	CERT	CRTICARNEGIE	WC
Systems Administration/Networking	CERT	CRTNETWRKADM	WC
<u>Concentrations:</u> Administrator CISCO Microsoft Linux		CNSA CNSC CSNM CSNX	
Systems Administration/Networking	AAS	AASCOMPSYSAD	WC
<u>Concentrations:</u> Administrator Small Computer Systems Administrator		CSNA  CSNS	
<b>Computer Software Applications</b>			
Computer Software Applications For Office Professionals	CERT	CRTCSAPROFES CSAO	DC
Computer Software Applications Assistant	CERT	CRTCOMPAPPAD CSAA	DC
Computer Software Applications Specialist	CERT	CRTCOMPAPPSP CSAS	DC
Microsoft Office Specialist (MOS) Master Certification Preparation	CERT	CRTCSO	DC
Basic Software Applications for the Web: Macromedia	CERT	CRTCSB	DC
Integrated Software Applications for the Web: Macromedia	CERT	CRTCSI	DC

\* The lead campus is the only campus to offer all courses required for the certificate or degree. Other campuses may offer only introductory course(s) for the certificate or degree. Check the *Schedule of Classes* for the courses offered on each campus.

\*\* Special Admissions Requirements—See an advisor

**Occupational Programs** (continued)

Major Program Concentration	Award	Program / Concentration Code	Lead Campus*
<b>Crime Scene Management</b>			
See Forensics and Crime Scene Technology			
<b>Culinary Arts</b>			
Culinary Arts	CERT	CRTCULNRYART	DV
Culinary Arts	AAS	AASCULNRYART	DV
<b>Dental Studies</b>			
Dental Assisting Education	CERT	Special	WC
Dental Hygiene	AAS	Special	WC
Dental Laboratory Technology	CERT	Special	WC
<u>Concentrations:</u>			
Complete Dentures Technologist			
Dental Ceramics Technologist			
Fixed Bridgework Technologist			
Partial Dentures Technologist			
Dental Laboratory Technology	AAS	Special	WC
<b>Digital Arts</b>			
Digital Arts	CERT	CRTCOMMGRAPH	WC
Digital Arts	AAS	AASCOMMGRAPH	WC
<u>Concentrations:</u>			
Design		DARD	
Illustration		DARI	
Multimedia		DARM	
Web Design		DARW	
Digital Arts	CERA	CRDDAR	WC
Digital and Film Arts	CERT	CRTDIGIFILM	WC
Digital and Film Arts	AAS	AASDIGIFILM	WC
Digital and Film Arts – Animation	AAS	AASANIMATION	WC
<b>Education</b>			
<b>Early Childhood Education</b>			
Early Childhood Education Teacher Aide/Assistant	CERT	CRTEACHAIDE ECEA	DV
Early Childhood Education Teacher/Director	AAS	AASTEACHDRCT ECET	DV
Early Childhood Education School-Aged Child Care	CERT	CRTCHILDCR-B ECES	DV
Early Childhood Education School-Aged Child Care	CERT	CRTCHILDCR-A ECES	DV
Early Childhood Education School-Aged Child Care	AAS	AASCHILDCARE ECES	DV
Early Childhood Endorsement Pre-K through K	CERA	CRDECE	CC
<b>Child Development Associate</b>			
Child Development Associate	CERT	CRTCHILDDEV	DV
<u>Concentrations:</u>			
Family Child Care		CDAF	
Infant/Toddler Management		CDAO	
Preschool		CDAM	
School-Age		CDAP CDAS	

\* The lead campus is the only campus to offer all courses required for the certificate or degree. Other campuses may offer only introductory course(s) for the certificate or degree. Check the *Schedule of Classes* for the courses offered on each campus.

\*\* Special Admissions Requirements—See an advisor

Major Program Concentration	Award	Program / Concentration Code	Lead Campus*
<b>Education (continued)</b>			
<b>Teacher Education</b>			
Teacher Certification Elementary or Secondary	CERA	CRDTEACHCERT	CC
<u>Concentrations:</u>			
Elementary Certification		EDUE	
Secondary Certification		EDUS	
Special Education and Elementary or Secondary Dual Certification	CERA	CRDEDS	CC
<u>Concentrations:</u>			
Special Education and Elementary	EDSE		
Special Education and Secondary	EDSS		
Education Endorsement ESL	CERA	CRDENDORSEA EDEE	CC
Education Endorsement K-12 Reading	CERA	CRDENDORSEB EDDR	CC
Education Endorsement Middle School	CERA	CRDENDORSEB EDDM	CC
<b>Educational Technology</b>			
Basic Educational Technology	CERT	CRTINTEDUTEC	CC
Advanced Educational Technology	CERT	CRTAEDUCTECH	CC
<b>Emergency Medical Technology</b>			
Basic Educational Technology	CERT	CRTEMEDTEC-B	EC
<b>English as a Second Language</b>			
English Immersion	CERT	CRTESI	EC
<b>Fashion Design</b>			
See Arts, Applied Core Options list			
<b>Fire Science</b>			
Fire Science	CERT	CRTFIRESICIEN	CC
Fire Science	AAS	AASFIRESICIEN	CC
<b>Fitness and Sport Sciences</b>			
Coaching	CERT	CRTCOACHING	WC
Fitness Professional	CERT	CRTFITNESS	WC
<b>Forensics and Crime Scene Technology</b>			
Crime Scene Management	CERT	CRTFORENSICS	CC
<b>Histotechnology</b>			
Histotechnician	CERA	CRDHTP	WC
Histotechnician	AAS	AASHISTOTECH	WC
<b>Hotel and Restaurant Management</b>			
Hotel and Restaurant Management	CERT	CRTHRM	NW
<b>Human Resources</b>			
Human Resources	CERT	CRTHUMANRES	CC
<b>Interior Design</b>			
Design Interior	AAS	AASDESIGN DESI	DC
<b>Interpreter Training Program</b>			
Interpreter Training Program	AAA	AAAINTPTRAIN	WC
<b>Leadership</b>			
Leadership	CERA	CRDLEADERSHP	DC
<u>Concentrations:</u>			
Entrepreneurship		LDRE	
Government		LDRG	
Non-profit		LDRN	



Major	Award	Program /	Lead
Program Concentration		Concentration Code	Campus*

**Legal Assistant**

See Paralegal

**Legal Secretary**

See Legal Secretary concentration in Office and Administrative Professions

**Machine Tool Technology**

Machine Tool Technology CERT CRTMACHNTOOL DC

Concentrations:

Computer Numerical Control (CNC) Machinist MACC

Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Machinist MACD

Electrical Discharge Machine (EDM) Operator MACE

Mechanical Inspector MACI

Manual Machinist MACM

Machine Operator MACO

Computer Numerical Control (CNC) Programmer MACP

Machine Tool Technology AAS AASMACHNTOOL DC

Concentrations:

Computer Numerical Control (CNC) Machinist MACC

Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Machinist MACD

Electrical Discharge Machine (EDM) Operator MACE

Mechanical Inspector MACI

Manual Machinist MACM

Machine Operator MACO

Computer Numerical Control (CNC) Programmer MACP

**Massage**

See Therapeutic Massage

**Medical Laboratory Technician**

Medical Laboratory Technician AAS AASMLT WC

**Nursing**

Associate Degree Nursing AAS Special WC

Practical Nursing CERT Special WC

**Office and Administrative Professions**

Office &amp; Administrative Professional CERT CRTADMINAIDE DC

Office Assistant OAPA

Office &amp; Administrative Professional CERT CRTADMINSPEC DC

Office Specialist OAPS

Health Information Technology CERT CRTOAH DC

Concentrations:

Medical Billing and Insurance Specialty OAHB

Medical Coding OAHC

Medical Front Office Support OAHF

Medical Transcription OAHT

Major	Award	Program /	Lead
Program Concentration		Concentration Code	Campus*

**Office and Administrative Professions (continued)**

Office &amp; Administrative Professional AAS AASADMINSUPP DC

Concentrations:

Medical Billing and Insurance Specialty OAPB

Computer Applications Office Assistant OAPC

Administrative Assistant OAPD

Medical Front Office Support OAPF

Medical Coding Specialty OAPG

Legal Secretary OAPL

Medical Transcription OAPT

**Paralegal**

Paralegal AAS AASLEGALASST DC

Paralegal CERA CRDLEGALASST DC

**Pharmacy Technology**

Pharmacy Technology CERT Special EC

Pharmacy Technology AAS Special EC

**Radiologic Technology**

Radiologic Technology AAS Special WC

Radiologic Technology - Magnetic Resonance Imaging CERT Special WC

**Real Estate**

see Real Estate courses

**Respiratory Therapist**

Respiratory Care AAS Special WC

**Social Services**

Social Services AAS AASSOCIALSRV WC

Social Services AAS AASSUBSTABUS WC

Substance Abuse Specialty SSES

Social Services AAS AASYOUTHSEV WC

Youth Services Specialty SSEY

Basic Social Services CERT CRTSOCIALSRV WC

Social Services CERT CRTSUBSTABUS WC

Substance Abuse Specialty SSES

Social Services CERT CRTDOMESVIOL WC

Domestic Violence Intervention SSED

Social Services Community Health Advisor CERT CRTHEALTHADV WC

Social Services CERT CRTREHABSVS WC

Concentrations:

Developmental Disabilities SSER

Rehabilitation

**Technology**

Technology CERT CRTTECHNOLGY DV

Technology AAS AASTESEMCON DV

Automated Systems TECA

\* The lead campus is the only campus to offer all courses required for the certificate or degree. Other campuses may offer only introductory course(s) for the certificate or degree. Check the *Schedule of Classes* for the courses offered on each campus.

\*\* Special Admissions Requirements—See an advisor

**Occupational Programs** *(continued)*

Major Program Concentration	Award	Program / Concentration Code	Lead Campus*
<b>Technology (continued)</b>			
Technology Electronics Systems	AAS	AASTECELECTR TECE	DV
Technology Computer	CERT	CRTTECCOMPUT TECC	DV
Technology Information Technology Specialist	AAS	AASTECCNETWRK TECI	DV
Electro-Optical Assembly and Testing	CERT	CRTOPTICTECB	DV
Optical Manufacturing	CERT	CRTOPTICTECA	DV
Optical Systems Technology	AAS	AASOPTICSTEC	DV
<b>Therapeutic Massage</b>			
Therapeutic Massage	CERT	Special	NW
Therapeutic Massage	AAS	Special	NW
<b>Tourism</b>			
See Tourism concentration in Business			
<b>Translation Studies</b>			
Translation Studies	CERT	CRTTRANSLATE	DC
<b>Truck Driver Training</b>			
Class A Vehicle Driver	CERT	CRTTRUCKCLSA	CC
Basic Truck Driver	CERT	CRTTRUCK-B	CC
Professional Truck Driver	CERT	CRTTRUCKDRIVT	CC
Straight Truck and Bus Driver	CERT	CRTTRUCKSBUS	CC
Commercial Truck Driver	CERT	CRTTRUCKDCOM	CC
<b>Veterinary Science</b>			
Veterinary Practice Assistant	CERT	CRTVEP	EC
Veterinary Technician	AAS	AASVETTECH	EC
<b>Welding</b>			
Welding	AAS	AASWELDING	DC

**General Studies**

Major Program Concentration	Award	Program / Concentration Code
General Studies	AGS	AGSGENRSTUDY

**Transfer Programs**

Major Program Concentration	Award	Program / Concentration Code
Administration of Justice Studies	AA	AOAADMINJUST
American Indian Studies	AA	AOAAMRINDSTU
Anthropology	AA	AOAANTHROPOL
Arizona General Education Curriculum (AGEC)	CERT	
AGEC-A (Liberal Arts)		Use program code of Transfer degree
AGEC-B (Business Administration)		
AGEC-S (Science/Technology)		

**Transfer Programs** *(continued)*

Major Program Concentration	Award	Program / Concentration Code
<b>Arts, Fine</b>		
Associate of Fine Arts Degree, Visual and Performing Arts <i>Concentrations:</i>	AFA	AFAFINEARTS
Dance		AFAD
Music		AFAM
Theatre		AFAT
Visual Arts		AFAV
<b>Business</b>		
Business	ABUS	AOBBUSIADMIN
Concentrations:		
Business Administration		BUSA
Public Administration		BUSP
International Business Management	CERT	CRTIBM
<b>Creative Writing</b>		
Creative Writing - Emphasis for Transfer	AA	AOALIBRALART
<b>Education</b>		
Early Childhood Education	AA	AOAECE
Education Elementary	AA	AOAEDUCATION EDUL
<b>Engineering</b>		
General Studies Engineering	AGS	AGSGENRSTUDY AGSE
<b>Fitness and Sport Sciences</b>		
Physical Education – Emphasis for Transfer	AA	AOALIBRALART
Exercise Science or Exercise and Wellness - Emphasis for Transfer	AA	AOALIBRALART
<b>Honors Program</b>		
Honors Program	CERT	CRTHON
<b>Hospitality</b>		
Hotel and Restaurant Management	AA	AOAHSPTALITY
<b>Interior Design</b>		
Design Interior	AA	AOADESIGN DESI
<b>Liberal Arts</b>		
Associate of Arts Degree	AA	AOALIBRALART
<b>Machine Tool Technology</b>		
Manufacturing Technology	AS	AOSMANUFTECH
<b>Political Science</b>		
Political Science	AA	AOAPOLITLSCI
<b>Psychology</b>		
Liberal Arts Psychology	AA	AOALIBRALART ALAP
<b>Science</b>		
Associate of Science Degree	AS	AOSSCIENCE
<b>Social Services</b>		
Social Services	AA	AOASOCIALSRV
<b>Sociology</b>		
Sociology	AA	AOASOCIOLOGY
<b>Speech Communication</b>		
Speech Communication - Emphasis for Transfer	AA	AOALIBRALART

# Accounting

Learn the skills and knowledge needed for bookkeeping and accounting careers. Students interested in becoming a Certified Public Accountant should refer to the Business Administration transfer program.

## Accounting — Certificate for Direct Employment

Understand business practices and learn specific accounting skills. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Entry-level bookkeeping and accounting positions

**Academic Options:** Continue your studies by taking classes toward an Accounting Associate of Applied Science degree or explore other business transfer options.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7046;  
Lead Faculty: 206-7354

**Program Identification Code:** CRTACCOUNTIN

### General Education Requirements -

**A grade of C or better is required for graduation**

Communication Requirement	†
WRT 101 or 107 or 154 fulfill this requirement	
Analysis and Critical Thinking Requirement	3
See General Education Section, page 56	
<b>Subtotal</b>	<b>3</b>

### Course Number Course Title Credit Hours

#### Required Core Courses -

**A grade of C or better is required for graduation**

ACC 100	Practical Accounting Procedures (F-Sp-S)	3
ACC 101	Financial Accounting (F-Sp-S)	3
ACC 102*	Managerial Accounting (F-Sp-S)	3
ACC 150*	Payroll Accounting (F-Sp)	3
ACC 200*	Computerized Accounting I (F-Sp)	4
ACC 204*	Individual Tax Accounting (F-Sp)	4
<b>Subtotal</b>		<b>20</b>

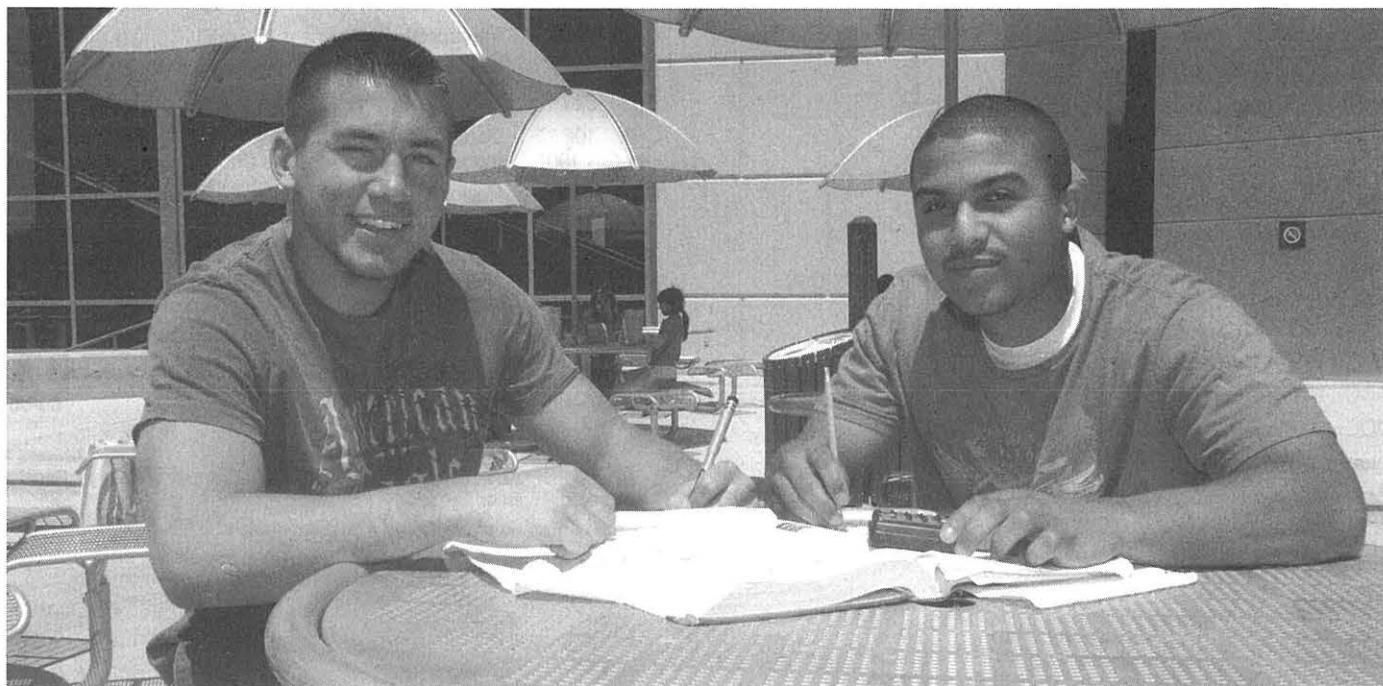
#### Required Support Courses

BUS 100	Introduction to Business (F-Sp-S)	3
BUS 220	Legal Environment of Business (F-Sp-S)	3
CSA 101	Computer Fundamentals (F-Sp-S)	
or CIS 100*	Introduction to Computers (F-Sp-S)	3
MGT 110	Human Relations in Business and Industry (F-Sp-S)	
or BUS 148	Business Ethics in the Workplace (F-Sp-S)	3
WRT 101*	Writing I (F-Sp-S)	
or WRT 107	Writing I for Non-Native Speakers of English (F-Sp-S)	
or WRT 154	Career Communications (F-Sp)	3
<b>Subtotal</b>		<b>15</b>

**Total credits as displayed 38**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.





## Accounting — Associate of Applied Science Degree for Direct Employment

Learn the theory, systems and basic problems of business accounting. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level positions in private, public and government accounting.

**Academic Options:** Continue your studies by taking other business programs, or work to complete the Bachelor of Applied Science transfer program.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7046;  
Lead Faculty: 206-7354

**Program Identification Code:** AASACCOUNTIN

### General Education Requirements -

**A grade of C or better is required for graduation**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 3  
ECN 200, 201 or ECN 202 fulfill 3 credits of the Social Science requirement. See General Education Section, page 56 for Humanities or Leadership and Ethics.

Computer and Information Literacy Requirement ..... †  
CSA 101 or CIS 100 fulfill this requirement.

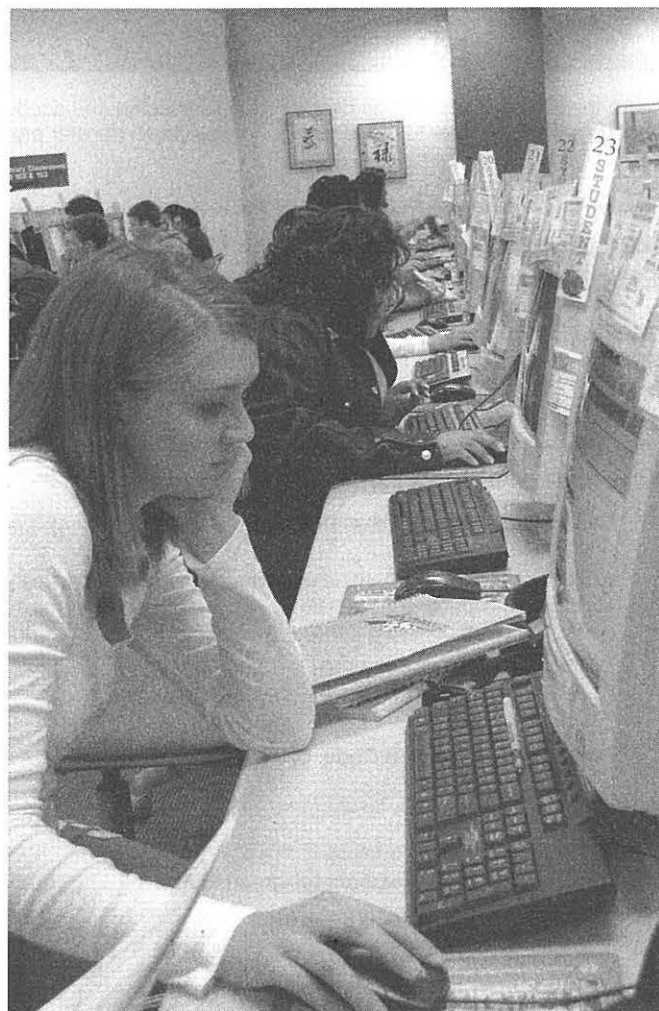
**Subtotal** ..... 15

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ACC 100	Practical Accounting Procedures (F-Sp-S)	3
ACC 101	Financial Accounting (F-Sp-S)	3
ACC 102*	Managerial Accounting (F-Sp-S)	3
ACC 150*	Payroll Accounting (F-Sp)	3
ACC 173* or ACC 203 or ACC 210*	Government and Not-For-Profit Accounting (Sp) Cost Accounting (Sp) Computerized Accounting II (F-Sp)	3-4
ACC 200*	Computerized Accounting I (F-Sp)	4
ACC 201*	Intermediate Accounting I (F)	3
ACC 202*	Intermediate Accounting II (Sp)	3
ACC 204*	Individual Tax Accounting (F-Sp)	4
<b>Subtotal</b>		<b>29-30</b>



### Required Support Courses

BUS 100	Introduction to Business (F-Sp-S)	3
BUS 148	Business Ethics in the Workplace (F-Sp-S)	3
BUS 220	Legal Environment of Business (F-Sp-S)	3
CSA 101 or CIS 100*	Computer Fundamentals (F-Sp-S) Introduction to Computers (F-Sp-S)	3
ECN 200 or ECN 201 or ECN 202*	Basic Economics Principles (F-Sp-S) Microeconomic Principles (F-Sp-S) Macroeconomic Principles (F-Sp-S)	3
MGT 110	Human Relations in Business and Industry (F-Sp-S)	3
MGT 280*	Business Organization and Management (F-Sp)	3
<b>Subtotal</b>		<b>21</b>

**Total credits as displayed** ..... 65-66

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Administration of Justice

## Administration of Justice Studies — Associate of Applied Science Degree for Direct Employment

This two-year degree covers a broad range of knowledge and professional skills in criminal law, corrections, and the American justice system. Students planning to transfer to ASU should complete the Administration of Justice - Associate of Arts degree instead (see next page). Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this degree?

**Career Options:** Find entry-level employment or promotion in corrections or criminal justice.

**Academic Options:** This degree can transfer to a few 4-year institutions. Use this degree to transfer to:

- Northern Arizona University's Bachelor of Applied Science in Justice System Policy and Planning program, which can be completed in Tucson.
- Western New Mexico University's Bachelor of Applied Science in Criminal Justice Policing

Locations: East Campus

Department/Contact Information: Division Dean: 206-7694;  
Lead Faculty: 206-7865

**Program Identification Code:** AASADMINJUST

### General Education Requirements -

#### A grade of C or better is required for graduation

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . †  
WRT 101, 102 fulfill this requirement.

Analysis and Critical Thinking Requirement . . . . . 6  
See General Education Section, page 56. (NAU BAS degree requires MAT 142 or higher and a four hour lab science. Please refer to the NAU Liberal Studies course list for options)

Humanities and Social Science Requirement . . . . . 3  
POS 201 fulfills 3 credits of the Social Sciences requirement.  
See General Education Section, page 56 for Humanities requirement.

Computer and Information Literacy Requirement . . . . . 1-3  
See General Education Section, page 56

**Subtotal . . . . . 10-12**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

AJS 101	Introduction to Administration of Justice Systems (F-Sp-S) . . . . .	3
AJS 109	Criminal Law (F-Sp) . . . . .	3
AJS 115	Criminal Procedures (F-Sp) . . . . .	3
AJS 123*	Corrections as a Process (F-Sp) . . . . .	3
AJS 201	Rules of Evidence (F-Sp) . . . . .	3
AJS 212*	Juvenile Justice Procedures (F-Sp) . . . . .	3
AJS 225	Criminology (F-Sp) . . . . .	3
AJS 290*	Administration of Justice Field Experience (F-Sp) . . . . .	3

In addition, select two of the following three courses:

AJS 124	Ethics and the Administration of Justice (F-Sp) . . . . .	3
AJS 210	Police Community and Human Relations (F-Sp) . . . . .	3
AJS 246	Race and Ethnicity Issues in the Administration of Justice (F-Sp) . . . . .	3

**Subtotal . . . . . 30**

### Required Support Courses

POS 201	American National Government and Politics (F-Sp-S) . . . . .	3
POS 231	American State and Local Governments and Politics (F-Sp) . . . . .	3
PSY 101*	Introduction to Psychology (F-Sp-S) . . . . .	4
SPE 120	Business and Professional Communication (F-Sp-S) . . . . .	3
WRT 101	Writing I (F-Sp-S) . . . . .	3
WRT 102	Writing II (F-Sp-S) . . . . .	3
WRT 154*	Career Communications (F-Sp) . . . . .	3

**Subtotal . . . . . 22**

**Total credits as displayed . . . . . 62-64§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Administration of Justice Studies — Associate of Arts Degree for Transfer

Prepare for advanced studies in corrections procedures and the criminal justice system. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** While this degree is intended for transfer, it also may lead to employment or advancement within the justice system.

**Academic Options:** Transfer to a university degree program. Use this degree to transfer to:

- Northern Arizona University's Bachelor of Science in Criminal Justice program
- Northern Arizona University's Bachelor of Applied Science in Justice System Policy and Planning program. This program can be completed in Tucson.
- Arizona State University
- University of Arizona transfer students interested in the Criminal Justice Administration program should complete the Associate of Business Administration, Public Administration concentration.

Locations: East Campus

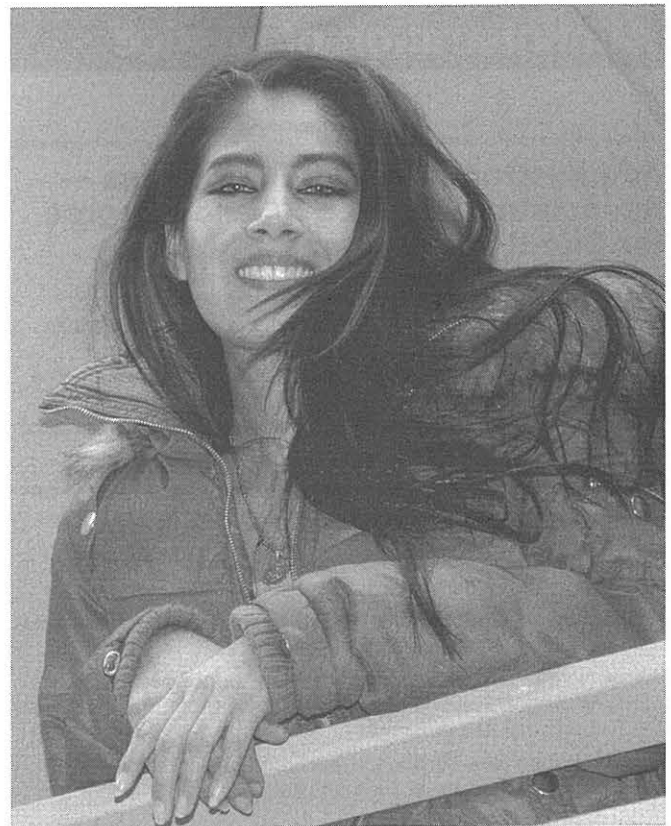
Department/Contact Information: Division Dean: 206-7694;  
Lead Faculty: 206-7846

**Program Identification Code:** AOAADMINJUST

### Arizona General Education Curriculum (AGEC-A) Requirements - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition	6
See General Education Section, page 57	
Humanities and Fine Arts	6-9
See General Education Section, page 57	
Biological and Physical Sciences	8
See General Education Section, page 57	
Mathematics	3
See General Education Section, page 57	
Social and Behavioral Sciences	6-9
See General Education Section, page 57	
Other Requirement Options	0-6
See General Education Section, page 57	
Special Requirements	
The I, C, and G requirements should be fulfilled by courses in the above categories. See General Education Section, page 57	
<b>Subtotal</b>	<b>35</b>



Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
AJS 101	Introduction to Administration of Justice Systems (F-Sp-S)	3
AJS 109	Criminal Law (F-Sp)	3
AJS 115	Criminal Procedures (F-Sp)	3
AJS 123*	Corrections as a Process (F-Sp)	3
AJS 201	Rules of Evidence (F-Sp)	3
AJS 212*	Juvenile Justice Procedures (F-Sp)	3
AJS 225	Criminology (F-Sp)	3
Department Electives:		
In addition, select two of the following three courses		
AJS 124	Ethics and the Administration of Justice (F-Sp)	3
AJS 210	Police Community and Human Relations (F-Sp)	3
AJS 246	Race and Ethnicity Issues in the Administration of Justice (F-Sp)	3
<b>Subtotal</b>		<b>27</b>
<b>Total credits as displayed</b>		<b>62§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



# American Indian Studies

## American Indian Studies — Associate of Arts Degree for Transfer

Learn more about the cultures, histories, and issues facing Native Americans. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment with American Indian cultural or social services agencies, including tribal agencies.

**Academic Options:** Transfer to a university degree program in Liberal Arts and Sciences.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996;  
Lead Faculty: 206-6094

**Program Identification Code:** AOAAMRINDSTU

### Arizona General Education Curriculum (AGEC-A) Requirements - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition	6
See General Education Section, page 57	
Humanities and Fine Arts	3
ANT 206 fulfills 3 credits, complete one course from the Art List in the General Education section, See General Education Section, page 57	
Biological and Physical Sciences	8
See General Education Section, page 57	
Mathematics	3
See General Education Section, page 57	
Social and Behavioral Sciences	†
HIS 124, 148, HUM 260 fulfill this requirement.	
Other Requirement Options	†
Second language courses fulfill this requirement.	
AGEC Special Requirements	†
ANT 206, HIS 122, and HUM 260 fulfill this requirement.	
<b>Subtotal</b>	<b>20‡</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ANT 206	Contemporary Native Americans of the Southwest (F-Sp)	3
HIS 122	Tohono O'odham History and Culture (F-Sp)	3
HIS 124	History and Culture of the Yaqui People (F-Sp)	3
HIS 148	History of Indians of North America (F-Sp)	3
HUM 260	Intercultural Perspectives (F-Sp-S)	3
<b>Subtotal</b>		<b>15</b>

### Required Support Courses

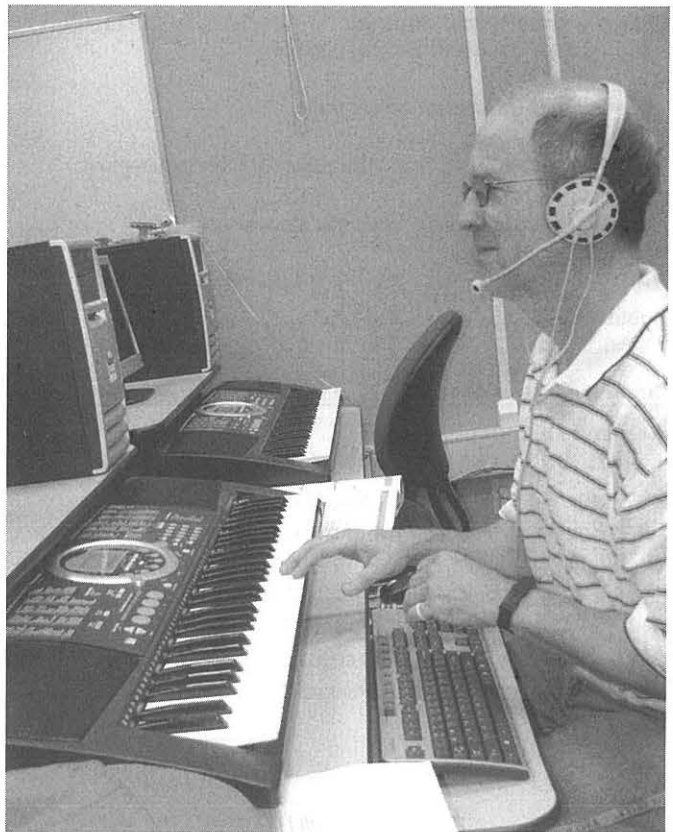
Second Language Requirement	16
Completion of a Language course numbered 202, fourth-semester level or SLG 202*. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the Language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.	
Electives	9-13
Complete 9-13 transferable electives from the American Indian Studies transfer guide or any transferable courses.	
<b>Subtotal</b>	<b>25-29</b>
<b>Total credits as displayed</b>	<b>60-64§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See description section.

† Core or support course(s) fulfill this requirement.

‡ AGEC requires 35 credits. This subtotal shows the AGEC credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



# Anthropology

## Anthropology — Associate of Arts Degree for Transfer

Learn about human biological and cultural differences, including human biology and origins, linguistics and world cultures both past and present. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Academic Options:** Attend a university degree program in anthropology or archaeology or pursue a Field Archaeology Certificate to learn practical archaeological fieldwork techniques.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996;  
Lead Faculty: 206-6645

**Program Identification Code:** AOAANTHROPOL

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 3  
ANT 205 or 206 fulfill 3 credits of this requirement. Complete one course from the Art list. See General Education Section, page 57

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... 3  
See General Education Section, page 57

Social and Behavioral Sciences ..... †  
ANT 101 and 102 and SOC 201 or 204 fulfill this requirement.

Other Requirements ..... †  
Second language course fulfills this requirement.

Special Requirements  
ANT 210 and either SOC 101 or 204 fulfill this requirement.

**Subtotal** ..... 20¥

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ANT 101	Human Origins and Prehistory (F-Sp)	3
ANT 102	Introduction to Cultural Anthropology and Linguistics (F-Sp)	3
ANT 200*	Biological Anthropology (n/o)	3
ANT 210*	Cultural Anthropology (S)	3
ANT 215	The Nature of Language (F-Sp)	3
ANT 225*	Principles of Archaeology (F)	3

Non-Western Civilization ..... 3  
Complete one of the following:  
ANT 205 Introduction to Southwestern Prehistory (F-Sp)  
or ANT 206 Contemporary Native Americans of the Southwest (F-Sp)

ANT ELEC ..... 6-8  
Complete 6-8 credit hours of electives after consultation with an anthropology faculty advisor or counselor or continue with the second year of a transferable foreign language.

**Subtotal** ..... 27-29

### Required Support Courses

SOC 201 Race, Ethnicity, Minority Groups and Social Justice (F-Sp-S)  
or SOC 204 Gender Identities, Interactions and Relations (F-Sp-S) ..... 3

Art Elective ..... 3

Second Language Requirement ..... 8

Completion of a Language course numbered 202, fourth-semester level, or completion of SPA 202\* or SLG 202\*. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the Language requirement in fewer than 8 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.

**Subtotal** ..... 14

**Total credits as displayed** ..... 61-63§

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Archaeology

## Field Archaeology Certificate for Direct Employment

Dig into the past by studying archaeological field work. Courses are designed for those seeking professional skills, those working toward an Anthropology degree with an archaeology emphasis, as well as for those with a general interest in archaeology. This program emphasizes the preservation and conservation of resources and applied skills in archaeology, particularly related to the pre-history of southern Arizona. Most program concentrations can be completed exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Seek employment in entry-level archaeology positions

**Academic Options:** Students planning to transfer to a four-year archeology degree program should pursue an Anthropology AA degree simultaneously with this certificate.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996;  
Lead Faculty: 206-6022 or  
206-6905

**Program Identification Code:** CRTFLDARCHEO

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ANT/ARC 101	Human Origins and Prehistory (F-Sp)	3
ARC/GEO 265	Mapping Concepts (F-Sp)	1
ANT/ARC 275	Archaeological Excavation I (F)	4
ANT/ARC 276	Archaeological Surveying I (F-Sp)	4
<b>Subtotal</b>		<b>12</b>

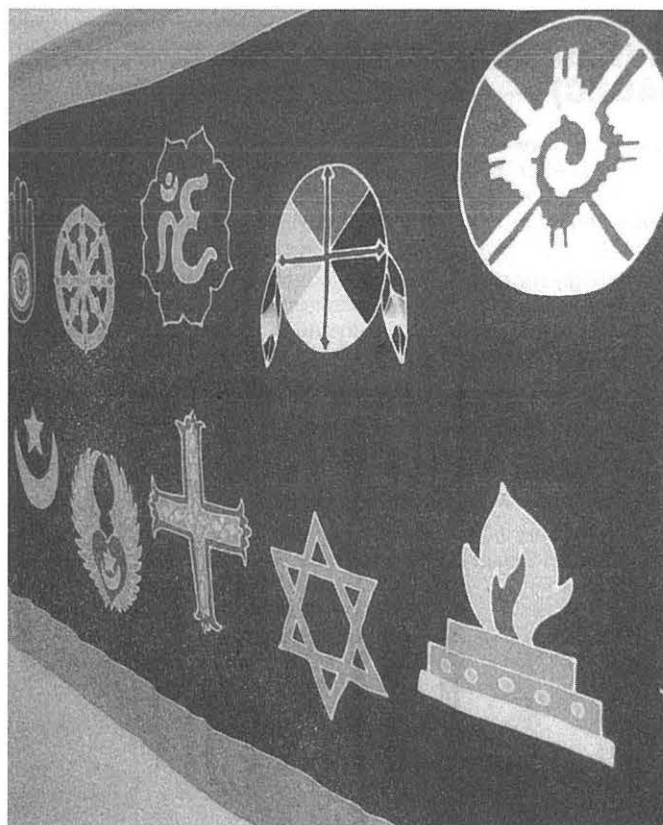
In addition to the core courses one or more of the following concentrations must be completed. . . . . 5-16  
(Department faculty advisor or counselor approval is recommended in the selection of the program concentration.)

### Artifact Fundamentals Concentration

ANT/ARC 180	Artifact Identification: Tucson Basin (Sp)	2
ANT/ARC 225	Principles of Archaeology (F)	3

### Southwestern Cultures Concentration

ANT 102	Introduction to Cultural Anthropology and Linguistics (F-Sp)	
or ANT 112	Exploring Non-Western Cultures (F-Sp-S)	3
ANT/ARC 205	Introduction to Southwestern Prehistory (F-Sp)	3
ANT/ARC 225	Principles of Archaeology (F)	3



### Field Methods Concentration

ANT/ARC 225	Principles of Archaeology (F)	3
ANT/ARC 250	Archaeology Laboratory (Sp)	4
ANT/ARC 277*	Archaeological Excavation II (F)	
or ANT/ARC 278	Archaeological Surveying II (n/o)	4
ANT/ARC 281	Global Positioning Systems (F-Sp)	2
ARC Elective	Elective in consultation with ARC faculty advisor	3

### Computer Archaeology and Cartography Concentration

ARC/GEO 267	Introduction to Geographic Information Systems (F)	3
ANT/ARC 281	Global Positioning Systems (F-Sp)	2
ANT/ARC/GEO 284	Computer Cartography and CAD (n/o)	3
ANT/ARC 286	Electronic and Digital Field Mapping (n/o)	
or DAR 120	Applied Computer Graphics (F-Sp-S)	4
ARC, CIS, DAR, CGR Elective	Elective in consultation with Archeology faculty advisor	3

**Total credits as displayed . . . . . 17-28**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



# Arizona General Education Curriculum

## Arizona General Education Curriculum (AGEC) — Certificate for Transfer

Complete lower-division general education requirements for transfer to ASU, NAU, UA or the University of Phoenix. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of daytime, evening and weekend classes.

It is strongly recommended that students complete the Associate of Arts, Associate of Business Administration, or Associate of Science degrees in addition to the AGEC before transferring. The AGEC without a degree is not eligible for financial aid.

### What can I do with this certificate?

**Academic Options:** Transfer to a college or university.

**Locations:** All campuses

**Department/Contact Information:**

**Division Dean:** 206-6809 (Desert Vista Campus);  
206-7046 (Downtown Campus);  
206-7661 (East Campus);  
206-2294 (Northwest Campus);  
206-6996 (West Campus);  
206-6476 (Community Campus)

### Required Courses

35 credits are required for this certificate.

### Arizona General Education Curriculum (AGEC) Requirements - A grade of C or better is required in all courses for graduation.

See Transfer General Education (AGEC) Course Lists for AA, ABUS, and AS Degrees section of this catalog.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 6-9  
See General Education Section, page 57

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... 3  
See General Education Section, page 57

Social and Behavioral Sciences ..... 6-9  
See General Education Section, page 57

Other Requirement Options ..... 0-6  
See General Education Section, page 57

### AGEC Special Requirements

The I, C, and G requirements should be fulfilled by courses in the above categories. See General Education Section, page 57

**Total credits** ..... 35



# Arts

Gain knowledge and experience working in a variety of media.

## Associate Degrees:

- Applied Arts
- Associate of Arts: Visual Arts Concentration
- Associate of Arts: Dance Concentration
- Associate of Arts: Music Concentration
- Associate of Arts: Theater Concentration

## Applied Arts

### Applied Arts — Associate of Applied Arts Degree for Direct Employment

Gain experience working in a variety of art media or focus on a single area of interest. Learn art history or principles of effective art education. Students interested in digital and film arts should pursue a degree or certificate in that subject area. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

Students interested in transferring to a university should complete an Associate of Fine Arts degree, concentrating in visual arts, dance, music or theater.

#### What can I do with this degree?

**Career Options:** Work as an artist, artist assistant or entry-level art instructor.

**Academic Options:** Transfer to a Bachelor's of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6883

**Program Identification Code:** AAAAPPLDARTS

#### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 3

ART 130 or 131 fulfill 3 credits of the Humanities and Fine Arts requirement. See General Education, page 56 for Social Science or Leadership and Ethics

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

**Subtotal ..... 16-18**

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

ART 100	Basic Design (F-Sp-S) .....	3
ART 110*	Drawing I (F-Sp-S) .....	3
ART 115*	Color and Composition (F-Sp) .....	3
ART 120*	Sculptural Design (F-Sp-S) .....	3
ART 130	Art and Culture: Prehistoric Through Gothic (F-Sp-S) .....	3
ART 131	Art and Culture: Late Gothic Through Modern Periods (F-Sp-S) .....	3
<b>Subtotal .....</b>		<b>18</b>

#### Core Specialty: A grade of C or better is required for graduation.

Complete ten courses in any combination from any of the following categories ..... 30

#### Art History and Art Education

ART 105	Understanding Art (F-Sp-S) .....	3
ART 132	Modern Art Survey (n/o) .....	3
ART 133	Art in America (n/o) .....	3
ART 135	Pre-Columbian Art (n/o) .....	3
ART 136	Masks (n/o) .....	3
ART 230	History of Photography (Sp) .....	3
ART 250*	Gallery and Museum Practices (F-Sp) .....	3
ART 296I1*	Independent Study in ART: Art History (F-Sp) .....	1-3

#### Ceramics

ART 160*	Ceramics I (F-Sp-S) .....	3
ART 260*	Ceramics II (F-Sp-S) .....	3
ART 261*	Ceramics III (F-Sp) .....	3
ART 262*	Ceramics IV (F-Sp) .....	3
ART 296I2*	Independent Study in ART: Ceramics (F-Sp) .....	1-3

#### Digital Arts

DAR 103	Introduction to Digital Arts (F-Sp-S) .....	3
DAR 120	Applied Computer Graphics (F-Sp-S) .....	4
DAR 122*	Desktop Graphics: Adobe Illustrator (F-Sp-S) .....	4
DAR 173	History of American Cinema (F-Sp) .....	3
DAR 220*	Desktop Publishing for Digital Arts: QuarkXpress (F-Sp) .....	4
DAR 223	Digital Drawing and Painting (F-Sp) .....	4
DAR 226*	Desktop Publishing for Digital Arts: Adobe InDesign (F-Sp) .....	4

*continued next page*

**Fashion Design**

FDC 111	Clothing Construction I: Beginning (F-Sp)	3
FDC 112	Alteration and Pattern Fitting (Sp)	3
FDC 121	Flat Pattern Making (F)	3
FDC 122	History of Clothing (Sp)	3
FDC 123	Introduction to Pattern-Making using Computer Software (n/o)	3
FDC 126	Textiles (F)	3
FDC 131	Clothing Selection (F)	3
FDC 132	Society, Culture, and Dress and the Individual (Sp)	3
FDC 141	Introduction to Fashion Design (F-Sp)	3
FDC 142	Restyling and Alterations	3
FDC 144*	Fashion Drawing (F-Sp)	3
FDC 211*	Clothing Construction II: Advanced (F-Sp)	3
FDC 212*	Clothing Construction III: Tailoring (Sp)	3
FDC 241*	Introduction to the Draping Method of Garment Design (Sp)	3

**Fiber Art**

ART 180	Weaving I: Four-Harness Loom (F)	3
ART 181	Mixed Media Fibers (Sp)	3
ART 280*	Weaving II (F-Sp)	3
ART 29618*	Independent Study in ART: Fibers (F-Sp)	1-3

**Metalwork**

ART 123	Lost Wax Sculpture Casting (F-Sp)	2
ART 170*	Metalwork I: Jewelry (F-Sp)	3
ART 175*	Ferrous Metalwork: Blacksmithing, Tool Making/Knife Making (F-Sp)	3
ART 270	Metalwork II: Jewelry (Sp)	3
ART 271*	Metalwork II: Smithing and Casting (Sp)	3
ART 29613*	Independent Study in ART: Metals (F-Sp)	1-3

**Painting and Drawing**

ART 201*	Survey of Painting, Materials, and Techniques (n/o)	3
ART 210*	Drawing II (F-Sp)	3
ART 213*	Life Drawing (F-Sp)	3
ART 215*	Painting I (F-Sp-S)	3
ART 217*	Painting II (F-Sp)	3
ART 29614*	Independent Study in ART: Painting, Drawing, and Design (F-Sp)	1-3

**Photography**

ART 128	Digital Photography I (F-Sp)	4
ART 140*	Photography I (F-Sp-S)	3
ART 141*	Photography II (F-Sp)	3
ART 143*	Commercial Photography (Sp)	3
ART 147*	Alternative Processes in Photography (F-Sp)	3
ART 29615*	Independent Study in ART: Photography (F-Sp)	1-3

**Printmaking**

ART 212*	Printmaking I (F-Sp-S)	3
ART 214*	Printmaking II (Sp)	3
ART 216*	Screenprinting I (F-Sp)	3
ART 218*	Screenprinting II (F-Sp)	3
ART 219*	Printmaking III (Sp)	3
ART 29616*	Independent Study in ART: Printmaking (F-Sp)	1-3

**Sculpture/Glass Art**

ART 121*	Figure Sculpture (Sp)	3
ART 220*	Sculpture (Sp)	3
ART 265*	Furnace Glassblowing I (F-Sp)	4
ART 266*	Furnace Glassblowing II (F-Sp)	4
ART 29617*	Independent Study in ART: Sculpture (F-Sp)	1-3
ART 29619*	Independent Study in ART: Glass (F-Sp)	1-4

**Other**

MKT 139	Retailing (n/o)	
or BUS 100	Introduction to Business (F-Sp-S)	3
MAC 110	Manual Machine Shop (F-Sp-S)	4
WLD 120	Welding for Metal Sculpture (F-Sp)	4

**Total credits as displayed** ..... 64-66§

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Fine Arts

## Visual and Performing Arts — Associate of Fine Arts for Transfer - Visual Arts Concentration

Study a variety of art forms or learn art history while preparing to transfer to a 4-year university. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Work as an artist, art educator or in art or performance production.

**Academic Options:** Transfer to a university to complete a bachelor's degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6883.

**Program Identification Code:** AFAFINEARTS

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement – Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... †  
Core courses fulfill this requirement.

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... 3  
See General Education Section, page 57

Social and Behavioral Sciences ..... 6  
See General Education Section, page 57

Other Requirements ..... †  
Core courses fulfill this requirement

Special Requirements

ART 130 fulfills the I and G requirements. The C requirement should be fulfilled by courses in the above categories. See General Education Section, page 57

**Subtotal..... 23¥**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ART 100	Basic Design (F-Sp-S).....	3
ART 110*	Drawing I (F-Sp-S).....	3
ART 115*	Color and Composition (F-Sp).....	3
ART 120*	Sculptural Design (F-Sp-S).....	3
ART 130	Art and Culture: Prehistoric Through Gothic (F-Sp-S).....	3
ART 131	Art and Culture: Late Gothic Through Modern Periods (F-Sp-S).....	3
ART 210* or 213*	Drawing II (F-Sp) Life Drawing (F-Sp).....	3
<b>Subtotal.....</b>		<b>21</b>

### Required Support Courses-

**A grade of C or better is required for graduation.**

### Art Electives or more

Complete five or more courses at the 100 level or higher from any of the following categories:

### Art in the Craft Media

ART 160*	Ceramics I (F-Sp-S).....	3
ART 170*	Metalwork I: Jewelry (F-Sp).....	3
ART 180*	Weaving I: Four-Harness Loom (F).....	3
ART 181*	Mixed Media Fibers (Sp).....	3
ART 260*	Ceramics II (F-Sp-S).....	3
ART 261*	Ceramics III (F-Sp).....	3
ART 262*	Ceramics IV (F-Sp).....	3
ART 270*	Metalwork II: Jewelry (Sp).....	3
ART 271*	Metalwork II: Smithing and Casting (Sp).....	3
ART 280*	Weaving II (F-Sp).....	3

### Photography

ART 128	Digital Photography I (F-Sp).....	4
ART 140*	Photography I (F-Sp-S).....	3
ART 141*	Photography II (F-Sp).....	3
ART 143*	Commercial Photography (Sp).....	3
ART 147*	Alternative Processes in Photography (F-Sp).....	3
ART 230	History of Photography (Sp).....	3

### Art History

ART 132	Modern Art Survey (n/o).....	3
ART 135	Pre-Columbian Art (n/o).....	3
ART 136	Masks (n/o).....	3

### Drawing, Painting, and Sculpture

ART 121*	Figure Sculpture (Sp).....	3
ART 210*	Drawing II (F-Sp).....	3
ART 213*	Life Drawing (F-Sp).....	3
ART 215*	Painting I (F-Sp-S).....	3
ART 217*	Painting II (Sp).....	3
ART 220*	Sculpture (Sp).....	3

### Printmaking

ART 212*	Printmaking I (F-Sp).....	3
ART 214*	Printmaking II (Sp).....	3
ART 216*	Screenprinting I (F-Sp).....	3
ART 218*	Screenprinting II (F-Sp).....	3
ART 219*	Printmaking III (Sp).....	3

**Subtotal ..... 16-18**

**Total credits ..... 60-62§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Visual and Performing Arts — Associate of Fine Arts for Transfer - Music Concentration

Study music theory and performance while preparing to transfer to a 4-year university. Complete this program exclusively on weekdays, or a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Work as a musician, or music teacher.

**Academic Options:** Transfer to a university to complete a bachelor's degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: Music  
206-6900

**Program Identification Code:** AFAFINEARTS

### Arizona General Education Curriculum Requirements (AGEC-A)- A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition	6
See General Education Section, page 57	
Humanities and Fine Arts	†
Core courses fulfill this requirement.	
Biological and Physical Sciences	8
See General Education Section, page 57	
Mathematics	3
See General Education Section, page 57	
Social and Behavioral Sciences	6-9
See General Education Section, page 57	
Other Requirements	0-3
See General Education Section, page 57	
Special Requirements	
The I, C, and G requirement should be fulfilled by courses in the above categories. See General Education Section, page 57	
<b>Subtotal</b>	<b>26¥</b>

### Required Core Courses -

**A grade of C or better is required for graduation.**

MUS 125*	Structure of Music I (F-Sp)	3
MUS 126*	Structure of Music II (Sp-S)	3
MUS 127	Aural Perception I (F-Sp)	2
MUS 129*	Aural Perception II (Sp-S)	2
MUS 141	Piano Class I (F-Sp)	2
MUS 142*	Piano Class II (Sp)	2
MUS 143*	Piano Class III (F)	2
MUS 144*	Piano Class IV (Sp)	2
MUP 161-168*	Studio Instruction: (Major) I (F-Sp)**	2
MUP 171-178*	Studio Instruction: (Major) II (F-Sp)**	2
MUS 201*	History and Literature of Music I (n/o)	3
MUS 202*	History and Literature of Music II (Sp)	3
MUS 223*	Structure of Music III (F)	3
MUS 224*	Aural Perception III (F)	2
MUS 226*	Structure of Music IV (Sp)	3
MUS 228*	Aural Perception IV (Sp)	2
MUP 261-268*	Studio Instruction: (Major) III (F-Sp)**	2
MUP 271-278*	Studio Instruction: (Major) IV (F-Sp)**	2
<b>Subtotal</b>		<b>42</b>

### Core Options: - A grade of C or better is required for graduation.

Select two or more of the following courses for six credits:

MUS 116*	Pima Community College Orchestra I (F-Sp)	2
MUS 120*	Concert Band I (F-Sp)	3
MUS 130*	Chorale (SATB) (F-Sp)	3
MUS 131*	College Singers (SATB) (F-Sp)	3
<b>Subtotal</b>		<b>6</b>
<b>Total credits</b>		<b>74§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Some MUP courses are also offered in the summer. Please refer to the course section.

† Core or support course(s) fulfill this requirement.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Visual and Performing Arts — Associate of Fine Arts for Transfer - Theater Concentration

Study acting and theater production while preparing to transfer to a 4-year university. Complete this program exclusively on weekdays, or a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Work as an actor, or in performance production.

**Academic Options:** Transfer to a university to complete a bachelor's degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: Theater  
206-6690

**Program Identification Code:** AFAFINEARTS

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... †  
Core courses fulfill this requirement.

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... 3  
See General Education Section, page 57

Social and Behavioral Sciences ..... 6-9  
See General Education Section, page 57

Other Requirements ..... 0-3  
See General Education Section, page 57

Special Requirements  
THE 105 fulfills the C requirement. The I and G requirement should be fulfilled by courses in the above categories. See General Education Section, page 57

**Subtotal** ..... **26¥**

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

THE 103	Voice and Movement for the Actor I (F-Sp)	1
THE 105*	Theater Appreciation (F-Sp-S)	3
THE 111	Stagecraft (F-Sp)	3
THE 113*	Stagecraft Crew (F-Sp)	1
THE 115	Make-Up (F)	1
THE 125*	Theater Production (F-Sp)	2
THE 140	History of Theater to the 18th Century (F)	3
THE 141	History of Theater Since the 18th Century (Sp)	3
THE 149	Introduction to Acting I (F-Sp)	3
THE 151*	Introduction to Acting II (F-Sp)	3
THE 220*	Stage Lighting (F)	3
THE ELEC	any THE course	3
<b>Subtotal</b>		<b>29</b>



### Core Options: - A grade of C or better is required for graduation.

Choose one of the following options:

Complete one of the following options after consulting a theatre department faculty advisor or counselor:

#### Option 1:

THE 118 Basic Theater Graphics (Sp) ..... 3

THE 223\* Scene Design (Sp) ..... 3

#### Option 2:

THE 250\* Intermediate Acting I (F) ..... 3

THE 251\* Intermediate Acting II (Sp) ..... 3

**Subtotal** ..... **6**

**Total credits** ..... **61§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

¥ AGEC requires 35 credits. This subtotal shows the AGEC credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Visual and Performing Arts — Associate of Fine Arts for Transfer - Dance Concentration

Learn to teach or perform dance while preparing to transfer to a 4-year university. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Work as a dancer, or dance instructor.

**Academic Options:** Transfer to a university to complete a bachelor's degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690  
Lead Faculty: Dance  
206-6826

**Program Identification Code:** AFAFINEARTS

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 6-9  
See General Education Section, page 57

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... 3  
See General Education Section, page 57

Social and Behavioral Sciences ..... 6-9  
See General Education Section, page 57

Other Requirements ..... 0-6  
See General Education Section, page 57

#### Special Requirements

The I, C, and G requirement should be fulfilled by courses in the above categories. See General Education Section, page 57

**Subtotal** ..... **35**

### Required Core Courses -

**A grade of C or better is required for graduation.**

DNC 107 Dance Conditioning (F-Sp-S) ..... 2

DNC 150 Ballet I (F-Sp) ..... 2

DNC 166 Modern Dance I (F-Sp) ..... 2

DNC 180\* Choreography (F) ..... 2

DNC 200 Dance Appreciation and History (F) ..... 3

DNC 219 Jazz Dance I (F) ..... 2

DNC 230\* Rhythms for Dance.(Sp) ..... 2

DNC 269\* Dance Production and Performance (F-Sp) ..... 2

**Subtotal** ..... **17**

### Core Options: - A grade of C or better is required for graduation.

Choose one of the following options: ..... 6

Complete one of the following options after consulting a dance department faculty advisor or counselor:

#### Option 1:

DNC 215\* Teaching Methods for Dance I (F) ..... 3

DNC 216\* Teaching Methods for Dance II (Sp) ..... 3

#### Option 2:

DNC 152\* Ballet III (Sp) ..... 2

DNC 168\* Modern Dance III (Sp) ..... 2

DNC 221\* Jazz Dance III (S) ..... 2

**Subtotal** ..... **6**

### Support Electives - Choose up to 6 credits

Note: Classes taken for repeat credit will only count once for this concentration.

DNC 116\* Dance Improvisation (Sp) ..... 2

DNC 130 Tap Dance I (F) ..... 2

DNC 131\* Tap Dance II (F) ..... 2

DNC 132\* Tap Dance III (Sp) ..... 2

DNC 151\* Ballet II (F) ..... 2

DNC 167\* Modern Dance II (F) ..... 2

DNC 170 Danza Folkloricos Mexicanos (F-Sp) ..... 2

DNC 220\* Jazz Dance II (F) ..... 2

DNC 280 Business for Dance Careers (Sp) ..... 3

DNC 285 Technology for Dance (Sp) ..... 2

THE 103 Voice and Movement for the Actor I (F-Sp) ..... 1

THE 105 Theater Appreciation (F-Sp-S) ..... 3

THE 149 Introduction to Acting I (F-Sp) ..... 3

MUS 102 Music Fundamentals (F-Sp-S) ..... 3

MUS 151 Exploring Music (F-Sp-S) ..... 3

MUS 160 Popular Music in America (F-Sp-S) ..... 3

**Subtotal** ..... **6**

**Total credits** ..... **60-64§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Associate of Arts

## Associate of Arts Degree in Liberal Arts for Transfer

Prepare to transfer by completing your general education requirements for a wide variety of university majors. Engage in creative pursuits such as writing, art, history or languages. Students interested in pharmacy or law should complete this degree before transferring to a university. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes. This program may also be completed online.

Concentrations are available for Creative Writing, Speech Communication, and Psychology. Specialized AA degrees are available in Administration of Justice, American Indian Studies, Anthropology, Elementary Education, Hotel and Restaurant Management, Interior Design, Political Science, Social Services and Sociology.

Students are encouraged to enroll in STU 210, Transfer Strategies, to plan a series of electives appropriate to their intended major.

Students who wish to transfer to an Arizona university and pursue a major in any of the following areas, should complete the Pima Associate of Arts in Liberal Arts Degree for Transfer.

- Asian Studies
- Biology (UA requires the Associate of Science; ASU and NAU require the Associate of Arts in Liberal Arts)
- Creative Writing
- Digital Arts
- Education: Secondary and Special Education/Rehabilitation (see the Associate of Arts in Elementary Education)
- English
- Environmental Science
- Fitness and Sports Science, Exercise Science, Wellness and Physical Education History
- Journalism
- Languages: Apache, Arabic, Chinese, French, German, Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Sign Language, Spanish, Tohono O'odham, Yaqui
- Mathematics
- Pre-Agriculture
- Pre-Law
- Pre-Pharmacy
- Psychology
- Speech Communication

### What can I do with this degree?

**Academic Options:** Transfer to a university and major in subjects other than science, business or technology. Additional information on transferring to a university is available online

(<http://www.pima.edu/transfer/transferringfrompima.shtml>) or from any advisor or counselor.

Locations: All campuses

Department/Contact Information:

Division Dean: 206-6809 (Desert Vista Campus);

206-7046 (Downtown Campus);

206-7661 (East Campus);

206-2294 (Northwest Campus);

206-6996 (West Campus);

206-6476 (Community Campus)

**Program Identification Code:** AOALIBRALART

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required in all courses for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 6-9  
See General Education Section, page 57

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... 3  
See General Education Section, page 57

Social and Behavioral Sciences ..... 6-9  
See General Education Section, page 57

Other Requirement Options ..... 0-6  
See General Education Section, page 57

AGEC Special Requirements

The I, C, and G requirement should be fulfilled by courses in the above categories. See General Education Section, page 57

**Subtotal ..... 35**

### Required Core -

**A grade of C or better is required for graduation.**

Select 25-29 transferable credits from transfer guides of interest, any transferable courses, or second

language courses. .... 25-29

Second Language Requirement ..... (0-16)

The second language requirement is dependent upon your major. It is not a requirement for this degree. Most university degrees require a language course numbered 202, fourth-semester level, or completion of SPA 203 or SLG 202. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.)

**Subtotal ..... 25-29**

**Total credits as displayed ..... 60-64§**

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



# Associate of Science

## Associate of Science Degree for Transfer

Complete lower-division general education requirements for transferring to a university to pursue a major in the life sciences, physical sciences, or computer science. Students interested in preparing for professional degrees in dentistry, medicine or veterinary science should complete this degree. Please read Transfer Options below for more information. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

Specialized degrees are available in: Engineering (AGS) and Manufacturing Technology (AS). Pre-Pharmacy students should complete the Associate of Arts in Liberal Arts degree.

Students who wish to transfer to an Arizona university and pursue a major in any of the following areas, should complete the Pima Associate of Science degree for transfer.

- Astronomy
- Biochemistry
- Biology (see below)
- Chemistry
- Computer Information Systems (see below)
- Computer Science (see below)
- Geography
- Microbiology
- Molecular/Cellular Biology
- Physics
- Pre-Dentistry
- Pre-Medicine
- Pre-Veterinary Science



### Transfer Options:

#### All Majors

Transfer guides that indicate which Pima courses are accepted for transfer to each Arizona university are available online.

#### Biology

Students planning to transfer to:

- Arizona State University or Northern Arizona University should follow the Associate of Arts in Liberal Arts degree.
- The University of Arizona should follow the Associate of Science degree.

#### Computer Science

Students planning to transfer to:

- The University of Arizona's BS in Computer Science program should complete the Associate of Science degree
- The University of Arizona's Management Information Systems program in the Eller College of Business Management should complete the Business Administration – Associate of Business Administration degree
- Northern Arizona University's BAS Degree in Computer Information Systems should complete the Computer Programmer/Analyst Associate of Applied Science degree. This four-year degree can be completed in Tucson.
- Arizona State University's Computer Information Systems degree program in the W.P. Carey School of Business should complete the Business Administration – Associate of Business Administration degree

### What can I do with this degree?

**Academic Options:** Transfer to a university in a life or physical sciences program, or computer science program.

Locations: All campuses

Department/Contact Information:

Division Deans: 206-6809 (Desert Vista)  
 206-7046 (Downtown)  
 206-7661 (East)  
 206-2294 (Northwest)  
 206-6996 (West)  
 206-6476 (Community)

**Program Identification Code:** AOSSCIENCE

**Arizona General Education Curriculum Requirements (AGEC-S) -  
A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 6-9  
See General Education Section, page 57

Biological and Physical Sciences ..... †  
CHM 151/151LB/151IN and 152/152LB/152IN or PHY 210/210LB/IN  
and 216/216LB/IN fulfill this requirement.

Mathematics ..... †  
MAT 220 fulfills this requirement.

Social and Behavioral Sciences ..... 6-9  
See General Education Section, page 57

Other Requirement Options ..... 0-6  
See General Education Section, page 57

**AGEC Special Requirements**

The I, C, and G requirement should be fulfilled by courses in the above category. See General Education Section, page 57

**Subtotal ..... 24 ‡**

Course Number	Course Title	Credit Hours
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**Required Core Courses: A grade of C or better is required in all courses for graduation.**

CHM 151/151LB/151IN*	General Chemistry I (F-Sp-S)	
and CHM 152/152LB/152IN*	General Chemistry II (F-Sp-S)	
or		

PHY 210/210LB/IN*	Introductory Mechanics (F-Sp)	
and PHY 216/216LB/IN*	Introductory Electricity and Magnetism (F-Sp)	10

MAT 220*	Calculus I (F-Sp-S)	5
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Major/Electives		21-25
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The second language requirement is dependent upon your major. It is not a requirement of this degree. The UA and some other universities' B.S. degrees require a language course numbered 102, second-semester level or completion of SPA 103 or SLG 102. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.)

**Subtotal ..... 36-40**

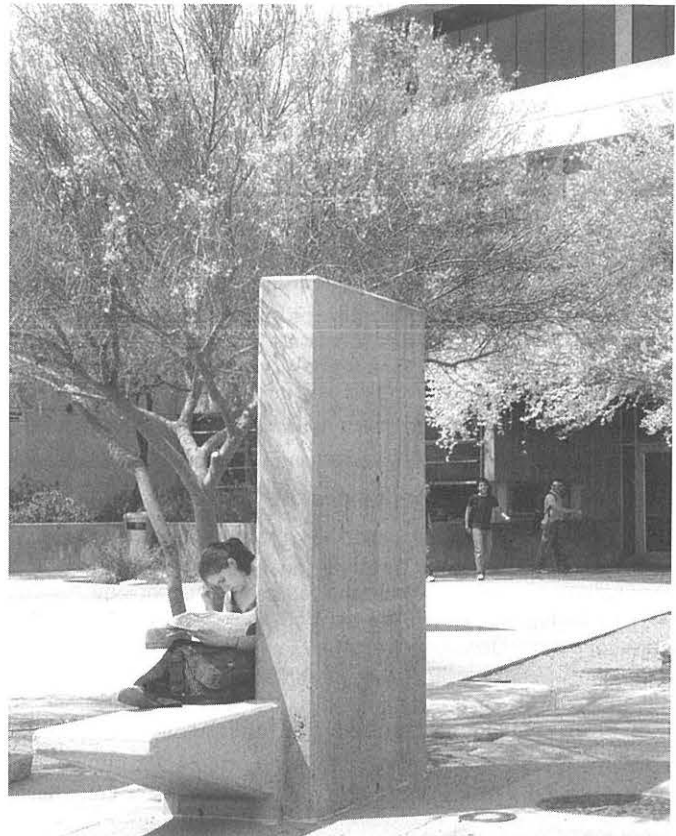
**Total credits as displayed ..... 60-64§**

† Core or support course(s) fulfill this requirement.

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

‡ AGEC requires 35 credits. This subtotal shows the AGEC credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Astronomy

Learn more about our vast universe and its fascinating contents – planets, stars, comets, galaxies, black holes and more – by taking astronomy courses. Classes include lecture, activities labs, and outside observation projects.

Astronomy courses are offered as part of the requirements of the **Associate of Science degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with an astronomy faculty member or advisor to plan their course of study using the appropriate transfer guide.

### *What can I do with my studies in astronomy?*

**Career options:** after completing a bachelor's degree, seek employment as a science teacher, museum/planetarium staff member, or science writer.

**Academic options:** continue studies toward a bachelor of science in astronomy, planetary sciences, or education.

Locations: All campuses

Department / Contact Information:

Division Deans: 206-5105 (Desert Vista Campus)  
206-7045 (Downtown Campus)  
206-7694 (East Campus)  
206-2264 (Northwest Campus)  
206-6763 (West Campus)  
206-6476 (Community Campus)

# Automotive Technology

Begin a career as an auto mechanic, or expand your skills and attain higher-level positions. Classes are hands-on and self-paced. The program is accredited by the National Automotive Technician Education Foundation (NATEF)/Automotive Service Excellence (ASE).

## Automotive Mechanics — Certificate for Direct Employment

From diagnosis and repair to tune-ups and troubleshooting, cover the basics of auto mechanics. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

**Before you can enroll**, you must complete AUT 100 and 101.

### What can I do with this certificate?

**Career Options:** Entry-level auto mechanic or technician.

**Academic Options:** Continue your studies by taking additional courses toward the Automotive Technology AAS degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Auto Lab: 206-7190

**Program Identification Code:** CRTAUTOMECHS

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
AUT 105	Light Line Maintenance (F-Sp-S)	3
AUT 120	Engine Diagnosis and Repair (F-Sp-S)	3
AUT 128	Automotive Electrical Fundamentals and Applications (F-Sp-S)	3
AUT 132	Automotive Drivetrain Removal and Replacement (F-Sp-S)	3
AUT 139	Automotive Steering and Alignment Systems (F-Sp-S)	3
AUT 140	Automotive Brakes Diagnosis and Repair (F-Sp-S)	3
AUT 142	Automotive Heating, Ventilation, and Air Conditioning (F-Sp-S)	3
<b>Total credits as displayed</b>		<b>21</b>

## Automotive Technology — Associate of Applied Science Degree for Direct Employment

From steering and suspension to engines and electrical systems, understand car repair inside and out. Master the basics and prepare for entry-level positions, or choose additional advanced courses. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

**Before you can enroll**, you must complete AUT 100 and 101.

### What can I do with this degree?

**Career options:** Auto mechanic or technician, service writer, parts specialist or auto sales positions.

**Academic Options:** While not intended for transfer to a 4-year university, some of the courses in this program are transferable.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Auto Lab: 206-7190

**Program Identification Code:** AASAUTOTECHN

### General Education Requirement -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement	6
See General Education Section, page 56	
Analysis and Critical Thinking Requirement	6
See General Education Section, page 56	
Humanities and Social Science Requirement	6
See General Education Section, page 56	
Computer and Information Literacy Requirement	1-3
See General Education Section, page 56	

**Subtotal** ..... **19-21**

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
AUT 105	Light Line Maintenance (F-Sp-S)	3
AUT 120	Engine Diagnosis and Repair (F-Sp-S)	3
AUT 122	Engine Remove and Install (F-Sp-S)	3
AUT 124	Automotive Diesel Engine Tune-Up (F-Sp-S)	3
AUT 126	Engine Performance and Driveability Troubleshooting (F-Sp-S)	3
AUT 128	Automotive Electrical Fundamentals and Applications (F-Sp-S)	3
AUT 129	Automotive Electrical Accessories (F-Sp-S)	3
AUT 132	Automotive Drivetrain Removal and Replacement (F-Sp-S)	3
AUT 133	Automatic Transmission/Transaxle Service and Rebuilding (F-Sp-S)	3
AUT 136	Automotive Manual Transmission and Driveline Service (F-Sp-S)	3
AUT 138	Automotive Suspension Systems (F-Sp-S)	3
AUT 139	Automotive Steering & Alignment Systems (F-Sp-S)	3
AUT 140	Automotive Brakes Diagnosis & Repair (F-Sp-S)	3
AUT 142	Automotive Heating, Ventilation, and Air Conditioning (F-Sp-S)	3
<b>Subtotal</b> .....		<b>42</b>
<b>Total credits as displayed</b> .....		<b>61-63§</b>

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

# Aviation Technology



## Aviation Technology — Associate of Applied Science for Direct Employment

Gain skills and knowledge of Airframe and Powerplant, or Structural Repair.

### What can I do with this degree?

**Career Options:** Work in the aircraft industry as a mechanic.

**Academic Options:** The Airframe and Powerplant courses are taught per Federal Aviation Regulations Part 147 for FAA Aviation Maintenance Technician training to allow a student to be qualified for Airframe and Powerplant certification. Aviation Structural Repair has been offered as specialty training and does not fall under FAA Part 147 guidelines. Instead it is an industry directed curriculum preparing students to perform heavy structural repairs that exceed the requirements of Part 147 Airframe and Powerplant training.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;  
Lead Faculty: 206-5906

**Program Identification Code:** AASAVIATION

### General Education Requirements -

**A grade of C or better is required for graduation.**

Communication Requirement	6
See General Education Section, page 56	
Analysis and Critical Thinking Requirement	3-6
GTM 105 fulfills this requirement in the Structural Repair concentration. See General Education Section, page 56	
Humanities and Social Science Requirement	6
See General Education Section, page 56	
Computer and Information Literacy Requirement	3
See General Education Section, page 56	
<b>Subtotal</b>	<b>21</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

Choose one of the following concentrations:

#### Airframe and Powerplant

AVM 105	Aircraft Sheetmetal Repair (Sp)	5
AVM 130*	Aircraft Composite Repair (Sp)	5
AVM 209*	Intermediate Electricity (Sp)	5
AVM 211	Alternate Structure (S)	5
AVM 218	Airframe Rigging and Landing Gear Systems (S)	3
AVM 219	Airframe Inspections (S)	3
AVM 223	Hydraulic and Pneumatic Power (Sp)	3
AVM 224	Atmospheric Controls (Sp)	3
AVM 225	Fire, Ice, Rain and Fuel Systems (Sp)	3
AVM 226	Engine Electrical (F)	3
AVM 227	Engine Air Flow Systems (F)	3
AVM 228*	Aircraft Propellers (F)	3
AVM 229*	Engine Support Systems (F-S)	5
AVM 231	Engine Principles, Monitoring and Inspection (F)	5
AVM 232	Reciprocating Engine Overhaul (F)	5
AVM 233	Turbine Engines (F)	5
AVM 234*	Engine Fuel Metering and Operation (Sp)	5

**Subtotal** ..... **69**

#### Structural Repair

AVM 101	Structural Repair I (S)	4
AVM 102*	Structural Repair II (Sp)	4
AVM 110	Aircraft Blueprint Reading (F-S)	3
AVM 150*	Structural Repair III (F)	4
AVM 151*	Structural Repair IV (F)	4
AVM 165	Aircraft Hardware and Fasteners (F)	3
AVM 170	Aircraft Powerplant Familiarization (Sp)	3
AVM 203*	Structural Repair V (Sp)	4
AVM 204*	Structural Repair VI (Sp)	4
AVM 205	Motion Dynamics (F)	3
AVM 206	Materials and Processes (F)	3
AVM 210*	Advanced Composite Aircraft Repair I (Sp)	5
AVM 250*	Structural Repair VII (Sp)	4
AVM 260*	Advanced Composite Aircraft Repair II (Sp)	4
GTM 105*	Applied Technical Mathematics (F-Sp-S)	3

**Subtotal** ..... **55**

**Total credits as displayed** ..... **73-90§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Advanced Aviation Technology — Certificate for Direct Employment

Gain basic skills in General Mechanics, Airframe Mechanics, Powerplant, or Structural Repair.

### What can I do with this certificate?

**Career Options:** Entry-level positions in aircraft building, maintenance and repair.

**Academic Options:** Take additional courses toward the Aviation Technology AAS degree.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;  
Lead Faculty: 206-5906

**Program Identification Code:** CRTAVIATIONA

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

Choose one of the following concentrations:

#### General Mechanics

GTM 105*	Applied Technical Mathematics (F-Sp)	3
AVM 110	Aircraft Blueprint Reading (Sp-S)	3
AVM 114	Regulatory Requirements (F)	3
AVM 202	Aviation Safety (F)	3
AVM 205	Motion Dynamics (F)	3
AVM 206	Materials and Processes (F)	3
AVM 207	Weight and Balance (F)	3
AVM 208*	Basic Electricity (F)	5
<b>Subtotal</b>		<b>26</b>

#### Airframe Mechanics

AVM 105	Aircraft Sheetmetal Repair (Sp)	5
AVM 130*	Aircraft Composite Repair (Sp)	5
AVM 209*	Intermediate Electricity (Sp)	5
AVM 218	Airframe Rigging and Landing Gear System (S)	3
AVM 223	Hydraulic and Pneumatic Power (Sp)	3
AVM 224	Atmospheric Controls (Sp)	3
AVM 225	Fire, Ice, Rain, and Fuel systems (Sp)	3
<b>Subtotal</b>		<b>27</b>

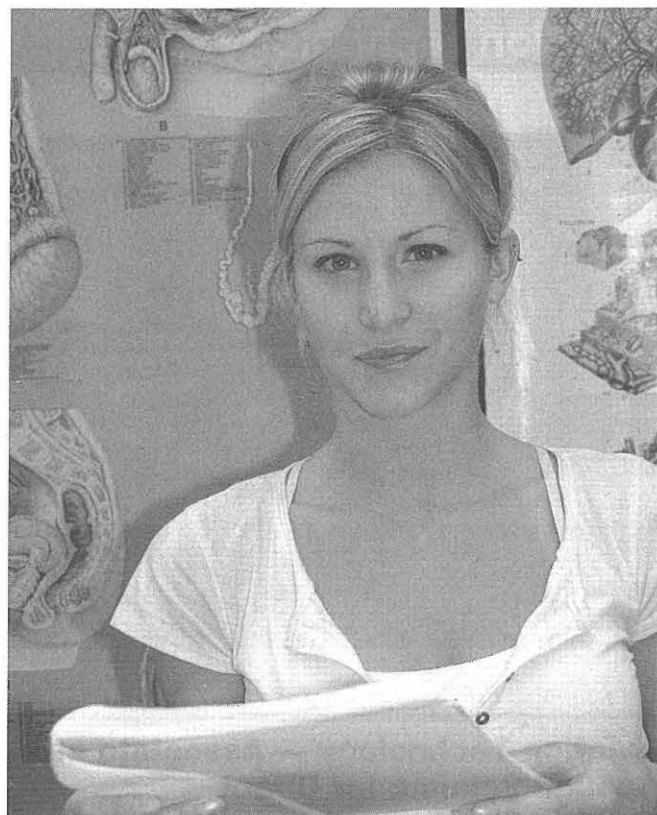
#### Powerplant

AVM 226	Engine Electrical (F)	3
AVM 228*	Aircraft Propellers (F)	3
AVM 229*	Engine Support Systems (Sp)	5
AVM 232	Reciprocating Engine Overhaul (F)	5
AVM 233	Turbine Engines (F)	5
AVM 234*	Engine Fuel Metering and Operation (Sp)	5
<b>Subtotal</b>		<b>26</b>

#### Aviation Structural Repair

AVM 101	Structural Repair I (S)	4
AVM 102*	Structural Repair II (Sp)	4
AVM 150*	Structural Repair III (F)	4
AVM 151*	Structural Repair IV (F)	4
AVM 203*	Structural Repair V (Sp)	4
AVM 204*	Structural Repair VI (Sp)	4
AVM 250*	Structural Repair VII (Sp)	4
<b>Subtotal</b>		<b>28</b>

**Total credits as displayed** ..... **26-28**



## Biology

Study the science of living systems by taking biology courses that focus on microbiology, plant science, human anatomy and physiology, marine biology, biotechnology and more. Students learn through lecture and hands-on lab experiences.

Biology courses are offered as part of the requirements of the **Associate of Science degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU, or UA should meet with biology faculty to plan their course of study using the appropriate transfer guide.

### What can I do with my studies in biology?

**Career options:** work as a technician in laboratories, manufacturing firms, or government.

**Academic options:** continue studies toward a Bachelor of Science in biology, microbiology, agriculture, plant or animal science and more.

Locations: All campuses

Department / Contact Information:

Division Deans: 206-5105 (Desert Vista Campus)  
206-7045 (Downtown Campus)  
206-7694 (East Campus)  
206-2264 (Northwest Campus)  
206-6763 (West Campus)  
206-6476 (Community Campus)

# Biotechnology

Prepare for a high-tech career in biotechnology by completing this certificate and working in local industry, or using it to complement an Associate or Bachelor's degree in the life sciences. Complete this program exclusively on weekdays.

## Before enrolling in this program:

Students entering the Biotechnology program must have successfully completed the following:

- MAT 122 or higher, or placement into MAT 151 or higher
- BIO 181
- CHM 151

## Biotechnology — Certificate for Direct Employment

### What can I do with this certificate?

**Career Options:** Entry-level positions in biotechnology laboratories or career advancement when used to supplement existing degrees or work experience.

**Academic Options:** Complete additional courses to earn an Associate of Science degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763;  
Lead Faculty: 206-6002

**Program Identification Code:** CRTBIOTECH

Course Number	Course Title	Credit Hours
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### Required Core Course -

**A grade of C or better is required for graduation.**

CHM 152 IN*	General Chemistry II (F-Sp-S)	5
CHM 235 IN*	General Organic Chemistry I (F-Sp)	5
CHM 236 IN*	General Organic Chemistry II (F-Sp-S)	5
BIO 110**	Techniques and Mathematics for the Laboratory (F-Sp)	2
BIO 206*	Biotechnology Instrumentation I (F)	4
BIO 207*	Biotechnology Instrumentation II (Sp)	4
BIO 299*	Introduction to Co-op: Biotechnology (F-Sp-S)	1
BIO 299WK*	Co-op Work in Biotechnology (F-Sp-S)	3

**Total credits as displayed** .....27-29

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* This course can be fulfilled with a satisfactory score on the BIO 110 assessment exam.



# Building and Construction Technologies

Learn how to construct and maintain buildings with courses in the specialized fields of the building and construction industry including facilities maintenance, electrical, plumbing, carpentry, HVAC-R, construction management and control systems. Classes are hands-on and self-paced.

## Basic Building and Construction Technologies Certificate for Direct Employment

Get started in facilities maintenance. Courses cover tools, safety, rigging and reading blueprints, as well as technical electives based on student interests. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Apply for entry-level positions in facilities maintenance.

**Academic Options:** Continue your studies through the Advanced Certificate program.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7143

**Program Identification Code:** CRTBLDGCON-B

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for BCT (F-Sp-S)	1
BCT 111	Basic Safety for the Building Trades (F-Sp-S)	1
BCT 112	Construction Mathematics, Communication, and Employability** (F-Sp-S)	1
BCT 113	Hand and Power Tools** (F-Sp-S)	1
BCT 114	Blueprint Reading** (F-Sp-S)	1
BCT 115	Basic Rigging** (F-Sp-S)	1
<b>Subtotal</b>		<b>6</b>

### Required Support Courses

GTM 105*	Applied Technical Mathematics (F-Sp-S)	3
Technical Electives: . . . . .		9
Complete 9 credit hours from the following list with the approval of the department chair or faculty advisor:		
BCT 104, 106, 132, 145, 150, 172		
<b>Subtotal</b>		<b>12</b>
<b>Total credits as displayed</b>		<b>18</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* May be taken for credit by examination.

## Advanced Building and Construction Technologies Certificate for Direct Employment

Advance to technician or journeyman levels. Choose from concentrations in facilities maintenance, HVAC-R, electrical systems, plumbing, carpentry or control systems. Complete the Carpentry concentration exclusively on evenings/weekends, or in a combination of day and evening classes. All other concentrations can be completed exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening, and weekend classes.

### What can I do with this certificate?

**Career Options:** Apply for entry-level positions in building and construction trades.

**Academic Options:** Continue your studies by taking classes in the Associate of Applied Science program.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7143

**Program Identification Code:** CRTBLDGCON-A

### General Education Courses -

#### A grade of C or better is required for graduation.

Communication Requirement . . . . .	3
See General Education Section, page 56	
Analysis and Critical Thinking Requirement . . . . .	†
GTM 105 fulfills this requirement	
<b>Subtotal</b>	<b>3</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for BCT (F-Sp-S)	1
BCT 111	Basic Safety for the Building Trades	1
BCT 112	Construction Mathematics, Communication and Employability** (F-Sp-S)	1
BCT 113	Hand and Power Tools** (F-Sp-S)	1
BCT 114	Blueprint Reading** (F-Sp-S)	1
BCT 115	Basic Rigging** (F-Sp-S)	1
<b>Subtotal</b>		<b>6</b>

### Required Support Courses

CSA 100	Computer Literacy (F-Sp-S)	1
GTM 105*	Applied Technical Mathematics (F-Sp-S)	3
BCT Technical Electives: . . . . .		4
Complete four credit hours of BCT course work with the approval of the department chair or faculty advisor		
<b>Subtotal</b>		<b>8</b>

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

**Core Concentrations: -****A grade of C or better is required for graduation.**

Choose one of the following concentrations: ..... 16  
 Department chair or faculty advisor approval is  
 recommended in the selection of the Concentration.

**Carpentry**

BCT 101	Principles of Construction (F-Sp) .....	3
BCT 102	Building Materials (F-Sp) .....	3
BCT 120*	Blueprint Reading for Construction (F-Sp) .....	3
BCT 145*	Carpentry I (F-Sp-S) .....	4
BCT 146*	Woodworking (Sp) .....	3
<b>Subtotal</b> .....		<b>16</b>

**Facilities Maintenance**

BCT 104*	Introduction to Equipment Maintenance (F-Sp-S) ..	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-S) .....	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-S) .....	4
BCT 172*	Electrical I (F-Sp-S) .....	4
<b>Subtotal</b> .....		<b>16</b>

**Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R)**

BCT 104*	Introduction to Equipment Maintenance (F-Sp-S) ..	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-S) .....	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-S) .....	4
BCT 133*	Residential and Industrial HVAC II (F-Sp-S) .....	4
<b>Subtotal</b> .....		<b>16</b>

**Electrical**

BCT 135*	National Electrical Code Residential Wiring Applications (F-Sp-S) .....	4
BCT 172*	Electrical I (F-Sp-S) .....	4
BCT 173*	Electrical II (F-Sp-S) .....	4
BCT 174*	Electrical III (F-Sp-S) .....	4
<b>Subtotal</b> .....		<b>16</b>

**Plumbing**

BCT 106*	Soldering and Brazing for BCT (F-Sp-S) .....	4
BCT 150*	Plumbing Basics (F-Sp-S) .....	4
BCT 181*	Residential and Industrial Plumbing I (F-Sp-S) ..	4
BCT 182*	Residential and Industrial Plumbing II (Sp-S) .....	4
<b>Subtotal</b> .....		<b>16</b>
<b>Total credits as displayed</b> .....		<b>33</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

\*\* May be taken for credit by examination.

## Building and Construction Technologies — Associate of Applied Science Degree for Direct Employment

Learn advanced construction skills, or prepare to transfer to NAU's Construction Management degree. Choose from the eight concentrations listed below. Complete the Control System concentration exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes. Complete all other concentrations exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

Before you can enroll, you must complete REA 081, WRT 100, and MAT 082 or BCT 060. Students should have successfully completed course work or assessments within the first year of the program.

**What can I do with this degree?**

**Career Options:** Apply technical level positions in the building and construction trades.

**Academic Options:** Complete the Construction Management concentration to transfer to Northern Arizona University's bachelor's degree program.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;

Lead Faculty: 206-7143

**Program Identification Code:** AASBLDGCONST

**General Education Courses -****A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
 See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 3  
 GTM 105 fulfills 3 credits of this requirement. See General Education section, page 56

Humanities and Social Science Requirement ..... 6  
 See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
 CSA 100 fulfills this requirement.

**Subtotal** ..... **15**

Course Number	Course Title	Credit Hours
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**Required Core Courses -****A grade of C or better is required for graduation.**

BCT 100	Professionalism in Service for BCT (F-Sp-S) .....	1
BCT 111	Basic Safety for the Building Trades (F-Sp-S) .....	1
BCT 112	Construction Mathematics, Communication and Employability** (F-Sp-S) .....	1
BCT 113	Hand and Power Tools** (F-Sp-S) .....	1
BCT 114	Blueprint Reading** (F-Sp-S) .....	1
BCT 115	Basic Rigging** (F-Sp-S) .....	1
<b>Subtotal</b> .....		<b>6</b>



**Required Support Courses**

CSA 100	Computer Literacy (F-Sp-S)	1
GTM 105*	Applied Technical Mathematics (F-Sp-S)	3
BCT Technical Electives:		4
Complete four credit hours of BCT course work with the approval of the department chair or faculty advisor		
<b>Subtotal</b>		<b>8</b>

**Core Concentrations: -****A grade of C or better is required for graduation.**

Choose one of the following concentrations: 33-36  
 Department chair or faculty advisor approval is recommended in the selection of the program option.

**Building Management**

ACC 101	Financial Accounting (F-Sp-S)	3
BCT 102	Building Materials (F-Sp)	3
BCT 120*	Blueprint Reading for Construction (F-Sp)	3
BUS 220	Legal Environment of Business (F-Sp-S)	3
CSA 110	Spreadsheets: Microsoft Excel (F-Sp-S)	3
IDE 111	Fundamentals of Interior Design (F-Sp)	3
MGT 122	Supervision (F-Sp-S)	3
RLS 101	Principles of Real Estate I/License Preparation (F-S)	3

Technical Electives: 11  
 Complete 11 credit hours from the following list with the approval of the department chair or faculty advisor BCT, CAD, and IDE

**Subtotal 35****Construction Management**

ACC 101	Financial Accounting (F-Sp-S)	3
BCT 101	Principles of Construction (F-Sp)	3
BCT 102	Building Materials (F-Sp)	3
BCT 120*	Blueprint Reading for Construction (F-Sp)	3
BCT 123	Concrete/Masonry (Sp)	3
BCT 202	Construction Business Management (F-Sp)	3
BCT 204*	Construction Surveying (Sp)	3
BCT 286	International Residential Code (IRC) I (F)	3
BCT 287*	International Residential Code (IRC) II (Sp)	3
CAD 101	Computer Aided Drafting I (F-Sp-S)	4
MGT 122	Supervision (F-Sp-S)	3

**Subtotal 34****Carpentry**

BCT 101	Principles of Construction (F-Sp)	3
BCT 102	Building Materials (Sp)	3
BCT 120*	Blueprint Reading for Construction (F-Sp)	3
BCT 123	Concrete/Masonry (Sp)	3
BCT 145*	Carpentry I (F-Sp-S)	4
BCT 146*	Woodworking (Sp)	3
BCT 245*	Carpentry II (n/o)	4
BCT 246*	Carpentry III (n/o)	4
BCT 286*	International Residential Code (IRC) I (F)	3
BCT 287*	International Residential Code (IRC) II (Sp)	3

**Subtotal 33****Facilities Maintenance**

BCT 104*	Introduction to Equipment Maintenance (F-Sp-S)	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-S)	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-S)	4
BCT 133*	Residential and Industrial HVAC II (F-Sp-S)	4
BCT 134	Residential and Industrial HVAC III (F-Sp-S)	4
BCT 150*	Plumbing Basics (F-Sp-S)	4
BCT 172*	Electrical I (F-Sp-S)	4
BCT 280*	International Building Code (IBC) I (n/o)	3
BCT 281*	International Building Code (IBC) II (n/o)	3

**Subtotal 34****Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R)**

BCT 104*	Introduction to Equipment Maintenance (F-Sp-S)	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-S)	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-S)	4
BCT 133*	Residential and Industrial HVAC II (F-Sp-S)	4
BCT 134*	Residential and Industrial HVAC III (F-Sp-S)	4
BCT 231*	Residential and Industrial HVAC IV (F-Sp-S)	4
BCT 232*	Residential and Industrial HVAC V (F-Sp-S)	4
BCT 233*	Residential and Industrial HVAC VI (n/o)	4
BCT 234*	Residential and Industrial HVAC VII (n/o)	4

**Subtotal 36****Electrical**

BCT 135*	National Electrical Code Residential Wiring Applications (F-Sp-S)	4
BCT 172*	Electrical I (F-Sp-S)	4
BCT 173*	Electrical II (F-Sp-S)	4
BCT 174*	Electrical III (F-Sp-S)	4
BCT 184	National Electrical Code I (F)	3
BCT 271*	Electrical IV (F)	4
BCT 272*	Electrical V (Sp)	4
BCT 273*	Electrical VI (F)	4
BCT 274*	Electrical VII (Sp)	4

**Subtotal 35****Plumbing**

BCT 106*	Soldering and Brazing for BCT (F-Sp-S)	4
BCT 150*	Plumbing Basics (F-Sp-S)	4
BCT 181*	Residential and Industrial Plumbing I (Sp)	4
BCT 182*	Residential and Industrial Plumbing II (n/o)	4
BCT 183*	Residential and Industrial Plumbing III (n/o)	4
BCT 236*	Residential and Industrial Plumbing IV (n/o)	4
BCT 237*	Residential and Industrial Plumbing V (n/o)	4
BCT 238*	Residential and Industrial Plumbing VI (n/o)	4
BCT 239*	Residential and Industrial Plumbing VII (n/o)	4

**Subtotal 36****Total credits as displayed 62-65§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* May be taken for credit by examination.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Business Careers

- Business
- International Business Studies

## Business

Explore the world of business including accounting, marketing, finance, economics and business administration. Acquire marketable business skills for employment in a variety of fields or prepare to start your own business.

### Basic Business — Certificate for Direct Employment

Get an introduction to business skills and principles. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

#### What can I do with this certificate?

**Career Options:** Entry-level business operations.

**Academic Options:** Continue your studies with the Advanced Business Certificate program.

Locations: All campuses.

Department/Contact Information: Division Dean: 206-7694;

Lead Faculty: 206-7691

**Program Identification Code:** CRTBUSINES-B

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

BUS 100	Introduction to Business (F-Sp-S)	3
BUS 151*	Mathematics of Business (F-Sp-S)	3
MGT 110	Human Relations in Business and Industry (F-Sp-S)	3

**Total credits as displayed** ..... 9

#### Required Support Courses

ACC 100	Practical Accounting Procedures (F-Sp-S)	3
WRT 101*	Writing I (F-Sp-S)	
or WRT 154*	Career Communications (F-Sp-S)	3

Electives- Complete 1-3 credit hours from the following list: ..... 1-3  
ACC, BUS, CIS, CSA, ECN, FIN, IBS, MGT, MKT, RLS

**Subtotal** ..... 7-9

**Total credits as displayed** ..... 16-18

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

### Advanced Business — Certificate for Direct Employment

Learn fundamental principles of business and skills in accounting, management and marketing. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

#### What can I do with this certificate?

**Career Options:** Entry-level business and marketing functions.

**Academic Options:** Continue your studies through the Business or Business Administration programs.

Locations: All campuses.

Department/Contact Information: Division Dean: 206-7694;

Lead Faculty: 206-7691

**Program Identification Code:** CRTBUSINES-A

#### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 or WRT 154 fulfills this requirement. See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 3  
See General Education Section, page 56

**Subtotal** ..... 3

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

BUS 100	Introduction to Business (F-Sp-S)	3
BUS 151*	Mathematics of Business (F-Sp-S)	3
BUS 220	Legal Environment of Business (F-Sp-S)	3
MGT 110	Human Relations in Business and Industry (F-Sp-S)	3

**Subtotal** ..... 12

#### Required Support Courses

ACC 101	Financial Accounting (F-Sp-S)	3
ACC 102*	Managerial Accounting (F-Sp-S)	3
CSA 101	Computer Fundamentals (F-Sp-S)	3
MGT 280*	Business Organization and Management (Sp)	3
MKT 111	Principles of Marketing (F-Sp-S)	3
WRT 101*	Writing I (F-Sp-S)	3
or WRT 154*	Career Communications (F-Sp-S)	3

**Subtotal** ..... 18

**Total credits as displayed** ..... 33

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfills this requirement.

## Business — Associate of Applied Science Degree For Direct Employment

Learn basic business principles and specialize in marketing, management or tourism. Select 6 hours of electives, choosing from real estate, computer science, international business and more. Students planning to transfer to a 4-year university should pursue the Associate of Business Administration. Complete the management concentration by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes. The tourism concentration may be completed online.

### What can I do with this degree?

**Career Options:** Carry out basic business functions, especially in marketing, management or tourism, for an employer or to open a small business.

**Academic Options:** Transfer to the University of Phoenix to pursue a Bachelor of Science in Business Management, or continue with other business career programs.

Locations: Management concentration at the East and West Campuses; Marketing concentration at the West Campus; Tourism concentration at the East Campus

Department/Contact Information: Division Dean: 206-7694;  
Lead Faculty: 206-7691

**Program Identification Code:** AASBUSINESS

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 3  
WRT 101 or WRT 154 may fulfill 3 credits of this requirement.  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 3  
ECN 201 or 202 fulfills 3 credits of this requirement. See  
General Education Section, page 56, for remaining 3 credits.

Computer and Information Literacy Requirement ..... †  
CSA 101 fulfills this requirement.

**Subtotal** ..... **12**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

BUS 100	Introduction to Business (F-Sp-S)	3
BUS 151*	Mathematics of Business (F-Sp-S)	3
BUS 220	Legal Environment of Business (F-Sp-S)	3
MGT 110	Human Relations in Business and Industry (F-Sp-S)	3

**Subtotal** ..... **12**

### Required Support Courses

ACC 101	Financial Accounting (F-Sp-S)	3
ACC 102*	Managerial Accounting (F-Sp-S)	3
CSA 101	Computer Fundamentals (F-Sp-S)	3
ECN 201*	Microeconomic Principles (F-Sp-S)	3
or ECN 202*	Macroeconomic Principles (F-Sp-S)	3
MGT 280*	Business Organization and Management (Sp)	3
MKT 111	Principles of Marketing (F-Sp-S)	3
WRT 101*	Writing I (F-Sp-S)	3
or WRT 154*	Career Communications (F-Sp-S)	3
Electives: Select 6 credits hours from the following list:		6
ACC, BUS, CIS, CSA, ECN, FIN, IBS, MGT, MKT, RLS		

**Subtotal** ..... **27**

### Core Concentrations: -

**A grade of C or better is required for graduation.**

Choose one of the following concentrations: ..... 12  
Select a minimum of 12 credit hours from one of the following concentrations. Department faculty advisor or counselor approval is recommended in the selection of the program option.

### Management Specialty

MGT 122	Supervision (F-Sp-S)	3
MGT 124	Small Business Management (F-Sp-S)	3
MGT 270*	Computer Applications for Managers (F)	3
MGT 276*	Human Resources (F)	3

### Marketing Specialty

DAR 120	Applied Computer Graphics (F-Sp-S)	4
MKT 113	Salesmanship (F-Sp)	3
MKT 125	Advertising (F)	3
MKT 139	Retailing (n/o)	3
MKT 150	Physical Distribution Management (n/o)	3
MKT 196	Independent Study in Marketing and Business (n/o)	0.50 to 3

### Tourism Specialty

TVL 101	Introduction to the Travel Industry (F-Sp-S)	3
TVL 103	Geography for the Tourism Professional (F-Sp-S)	3
TVL 121	Tourism Sales and Marketing (F-Sp-S)	3

Choose one of the following:

(Please consult with program faculty prior to course selection)

TVL 102	Computerized Reservation Systems I (F-Sp-S)	
TVL 109	Survey of Leisure Products (F-Sp-S)	
TVL 211	Tour Direction and Tour Group Management (F-Sp-S)	3

**Total credits as displayed** ..... **63§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credit hours.

## Business Administration — Associate of Business Administration Degree (ABUS) Degree for Transfer

Jump start your business career by completing this degree and then transferring to a university business administration degree or related program. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** This degree is designed for transfer rather than direct employment. After completing a 4-year degree, students are qualified for a variety of business careers including accounting, finance, management and marketing.

**Academic Options:** Transfer to a 4-year university to complete your degree.

Locations: All campuses

Department/Contact Information: Division Dean: 206-7694;  
Lead Faculty: 206-7691

**Program Identification Code:** AOBBUSIADMIN

### Arizona General Education Curriculum Requirement (AGEC-B) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 6  
See General Education Section, page 57

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... †  
MAT 212 or MAT 174 or higher fulfills this requirement.

Social and Behavioral Sciences ..... 0-3  
For Business administration students: ECN 201 or 202 fulfill 3 credits of this requirement. Complete one additional non-ECN course from the General Education list.

For Public Administration students: POS 202 and either ENC 201 or 202 fulfill this requirement.

Other Requirements ..... †  
CIS 100 and either MAT 172 or 173 fulfill this requirement.

Special Requirements  
The I, C, and G requirements should be fulfilled by selecting appropriate courses in the above categories. ....

**Subtotal** ..... **20-23 ¥**

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
ACC 101	Financial Accounting (F-Sp-S) . . . . .	3
BUS 205*	Statistical Methods in Economics and Business (F-Sp-S) . . . . .	3
BUS 220	Legal Environment of Business (F-Sp-S) . . . . .	3
CIS 100*	Introduction to Computers (F-Sp-S) . . . . .	3
ECN 201*	Microeconomic Principles (F-Sp-S) . . . . .	3
ECN 202*‡	Macroeconomic Principles (F-Sp-S) . . . . .	3
MAT 151*	College Algebra (F-Sp-S) . . . . .	4
MAT 151 is not required if the student has tested above MAT 151 or completed a College MAT course numbered higher than 151 with a grade C or better. Only in this case, the credits for MAT 151 may be replaced by any transferable course.		
Math Requirement: . . . . .		6
Please note: NAU and UA recommend the combination of MAT 173 and MAT 174.		
MAT 172*	Finite Mathematics (F-Sp-S)	
and MAT 212*	Topics in Calculus (F-Sp-S)	
or MAT 173*	Mathematics for Business I (F-Sp-S)	
and MAT 174*	Mathematics for Business II (F-Sp-S)	
<b>Subtotal</b> . . . . .		<b>28</b>
Business and Public Administration concentrations: . . . . .		12
<b>Business Administration:</b>		
ACC 102*	Managerial Accounting (F-Sp-S) . . . . .	3
Business Administration Electives . . . . .		9
See an advisor to complete the appropriate number of transferable electives so the program total is 60-64 credits. Courses from the following business prefixes are recommended: ACC, BUS, CIS, FIN, IBS, MGT, MKT, PAD, and RLS		
<b>Public Administration:</b>		
ACC 173*	Government and Not-For-Profit Accounting (Sp) . . . . .	3
AJS 101	Introduction to Administration of Justice Systems (F-Sp-S)	
or 256	Justice System Administration (n/o) . . . . .	3
PAD 221	Health, Human Services, and Public Management (n/o)	
or 105	Introduction to Public Administration (F) . . . . .	3
POS 202	Introduction to International Relations (F-Sp) . . . . .	3
<b>Total credits as displayed</b> . . . . .		<b>60-64</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support, or second language courses.

‡ ECN 200 can be substituted for ECN 201 or 202. (See an advisor)



## International Business Studies

### International Business Management — Certificate for Transfer

Learn international business and management skills while working with students from other countries. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

**Before enrolling in this program** you must meet special requirements:

Non-English speakers must earn a score of 450 points of TOEFL in order to be admitted to the program and 500 points in order to graduate. A TOEFL score of 450 satisfies the prerequisite for OAP 151.

#### What can I do with this certificate?

**Career Options:** Entry-level business assignments working with a diverse workforce, either domestically or abroad.

**Academic Options:** This certificate has bi-national recognition and is conferred by Pima Community College and the Instituto Tecnológico de Sonora (ITSON) of Mexico. ITSON students completing the certificate may transfer to ITSON and complete the Licenciatura en Administración degree (Bachelor of Science in Management). Pima students enrolled in this certificate should consider taking Spanish-immersion programs offered through ITSON.

Locations: Varies by semester

Department/Contact Information: Division Dean: 206-7694

**Program Identification Code:** CRTIBM

#### Prefix Course Title Credit Hours

##### Required Core Courses -

**A grade of C or better is required for graduation.**

BUS	210*	International Business (F-Sp)	3
IBS	120	Cultural Environment of International Business (Sp)	3
MGT	110	Human Relations in Business and Industry (F-Sp-S)	3
MGT	122	Supervision (F-Sp)	3
MKT	111	Principles of Marketing (F-Sp-S)	3
OAP	151*	Business English (F-Sp)	3
	or WRT 154*	Career Communications (F-Sp)	3
<b>Total credits as displayed</b>			<b>18</b>

\*This course has a prerequisite, co-requisite, or recommendation.



## Chemistry

Study the composition, properties and interactions of substances by taking chemistry courses that focus on general, consumer, forensic or organic chemistry. Students learn through lecture and hands-on lab experiences.

Chemistry courses are offered as part of the requirements of the **Associate of Science degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with chemistry faculty to plan their course of study using the appropriate transfer guide.

#### What can I do with my studies in chemistry?

**Career options:** work as a technician in laboratories, chemical manufacturing, government, and technical service firms

**Academic options:** continue studies towards a bachelor of science in chemistry, chemical engineering, engineering, education, pharmacy or other health-care fields

Department / Contact Information:

Division Deans: 206-5105 (Desert Vista Campus)  
206-7694 (East Campus)  
206-2264 (Northwest Campus)  
206-6763 (West Campus)  
206-6476 (Community Campus)

# Computer Aided Drafting

Prepare for careers in a variety of manufacturing and construction settings. Master basic to advanced computer-aided drafting skills for high-demand careers.

## Basic Computer Aided Drafting — Certificate for Direct Employment

Learn basic drafting and design fundamentals using computer aided drafting (CAD) tools. Complete this program by taking classes exclusively on weekdays during the daytime, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Work as an entry-level drafter and designer in manufacturing industries.

**Academic Options:** Continue your studies by completing the advanced computer aided drafting certificate.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;

Lead faculty: 206-7321

**Program Identification Code:** CRTCONDRT-B

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
CAD 101	Computer Aided Drafting I (F-Sp-S)	4
<b>Required Support Courses</b>		
CAD: Complete 12 credit hours in CAD at the 150 level or higher with the approval of the department chair or faculty advisor.		
<b>Total credits as displayed</b>		<b>16</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Advanced Computer Aided Drafting — Certificate for Direct Employment

Gain advanced computer aided drafting (CAD) skills. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Advanced drafting and designing positions.

**Academic Options:** Pursue an associate degree in computer aided drafting.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;

Lead faculty: 206-7321

**Program Identification Code:** CRTCONDRT-A

### General Education Requirements -

**A grade of C or better is required for graduation.**

Communication Requirement	3
See General Education Section, page 56	
Analysis and Critical Thinking Requirement	3
See General Education Section, page 56	
<b>Subtotal</b>	<b>6</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
CAD 101	Computer Aided Drafting I (F-Sp-S)	4

### Required Support Courses

CAD	Complete 12 credit hours in CAD at the 150 level or higher with the approval of the department chair or faculty advisor.	12
Technical Electives	Complete 8 credit hours at the 100 level or higher from any of the following list with the approval of the department chair or faculty advisor: BCT, CAD, IDE, ENG, LTP, MAC, TEC or WLD courses	8
<b>Total credits as displayed</b>		<b>30</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Computer Aided Drafting — Associate of Applied Science Degree

Choose from two computer aided drafting concentrations. Complete the Mechanical and Construction concentrations exclusively on evenings/weekends, or in a combination of day, weekday, evening and weekend classes.

**Before you can enroll**, you must complete REA 081, WRT 100, and MAT 082. Students should have successfully completed course work or assessments within the first year of the program.

### What can I do with this degree?

**Career Options:** Work as a drafter and designer in industries such as manufacturing, electronics, building construction, site development, interior design, and landscaping.

**Academic Options:** Transfer to a Bachelor's of Applied Science degree program at Arizona State University.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead faculty: 206-7321

**Program Identification Code:** AASELECMECHN

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
CAD 101 fulfills this requirement

**Subtotal** ..... **18**

Course Number	Course Title	Credit Hours
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### Required Core Course -

**A grade of C or better is required for graduation.**

CAD 101	Computer Aided Drafting I (F-Sp-S)	4
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CAD 151	Computer Aided Drafting II (F-Sp-S)	4
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CAD 280*	Computer Aided Drafting and Design Portfolio (F-Sp)	1
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**Subtotal** ..... **9**

### Core Concentrations -

**A grade of C or better is required for graduation.**

Choose one of the following concentrations: ..... 37

Department faculty approval is recommended when selecting concentration and technical elective courses.

### Mechanical/Electro-Mechanical

CAD 152*	Mechanical Computer Aided Drafting and Design I (F-Sp-S)	4
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CAD 153*	Electro-Mechanical Computer Aided Drafting and Design I (F-Sp)	4
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CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp)	3
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CAD 202*	Mechanical Computer Aided Drafting and Design II (F)	4
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CAD 203	Electro-Mechanical Computer Aided Drafting and Design II (n/o)	4
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CAD 252*	Mechanical Computer Aided Drafting & Design III: ProE Software (Sp)	4
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MAC 100*	Introduction to Machine Tool (F-Sp)	3
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MAC 110*	Manual Machine Shop (F-Sp-S)	4
	Technical Electives**	4

**Subtotal** ..... **34**

\*\*Complete 7 credits from the following list: CAD, ENG, MAC, TEC

Complete 14 credits from the following list with the approval of the department chair or faculty advisor: BCT, CAD, IDE, ENG, MAC, TEC and WL

### Construction

BCT 101	Principles of Construction (F-Sp)	3
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BCT 102	Building Materials (F-Sp)	3
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BCT 204*	Construction Surveying (Sp)	3
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CAD 155*	Residential CAD and Design (F-Sp-S)	4
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CAD 185	Three-Dimensional Residential Drafting and Design (F-Sp)	4
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CAD 206*	Commercial Computer Aided Drafting and Design I (F)	4
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CAD 207*	Civil Computer Aided Drafting and Design I (F)	4
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CAD 256*	Commercial Computer Aided Drafting and Design II (Sp)	4
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CAD 257*	Civil Computer Aided Drafting and Design II (Sp)	4
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**Subtotal** ..... **33**

**Total credits as displayed** ..... **60-61§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Computer Information Systems

Prepare for a career as a programmer, network administrator, systems administrator or database administrator, or upgrade existing skills and improve job performance.

## Computer Programmer Specialist — Certificate for Direct Employment

Take the fast track to becoming a computer programmer with this accelerated program, or enhance existing skills. Choose from concentrations in C programming, Visual Basic programming or web programming. Complete this program by taking classes exclusively on evenings/weekends, or in any combination of daytime and evening classes.

Before you can enroll in this program, you must fulfill certain requirements:

- For C programming, complete CIS 129, 131 and 250.
- For Visual Basic programming, complete CIS 129. Completion of CSA 101 is also recommended.
- For web programming, complete CIS 100 and 119.

### What can I do with this certificate?

**Career Options:** Become a C or Visual Basic programmer, or a web site designer, developer or administrator.

**Academic Options:** Continue your studies by taking courses toward a Computer Programmer/Analyst or Associate of Science degree.

Locations: East Campus, West Campus

Department/Contact Information:

Division Dean: 206-6996 (West Campus);  
206-7694 (East Campus)

**Program Identification Code:** CRTCMPPRGSP

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

Choose one of the following concentrations:

Department chair or faculty advisor approval is recommended in the selection of the program concentration.

### Programming in C

CIS 265*	The C Programming Language (F-Sp) . . . . .	4
CIS 269*	Data Structures (F-Sp) . . . . .	5
CIS 278*	C++ and Object-Oriented Programming (F-Sp) . . . . .	5
CIS 279*	Java Programming (F-Sp) . . . . .	5

### Programming in Visual Basic

CIS 141*	Introduction to VB.NET (F-Sp) . . . . .	4
CIS 162*	Database Design and Development (F-Sp) . . . . .	4
CIS 241	Advanced Visual Basic.NET Programming (Sp) . . . . .	4

CIS Department Elective (for this concentration only) . . . . . 3-5  
Complete any CIS course 129 or higher including prerequisite courses.

### Programming for the Web

BUS 125	eCommerce (F-Sp-S) . . . . .	3
CIS 121*	Web Publishing (F-Sp) . . . . .	3
CIS 265*	The C Programming Language (F-Sp) . . . . .	4
CIS 266*	CGI Programming with PERL (n/o) . . . . .	3
CIS 273*	Advanced Web Page Development (n/o) . . . . .	4
CIS 279*	Java Programming (F-Sp) . . . . .	5
DAR 112*	Graphic Design I (F-Sp-S) . . . . .	4

**Total credits as displayed . . . . . 15-26**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Computer Programmer/Analyst — Associate of Applied Science Degree for Direct Employment

Learn to design and develop software programs and applications. Courses focus on problem solving and structured programming concepts. Students interested in transferring to a 4-year university should read Transfer Options (see below) before beginning this degree. Complete this program by taking classes exclusively on evenings/weekends, or in any combination of daytime and evening classes.

**Before you can enroll**, you must complete CIS 129.

### What can I do with this degree?

**Career Options:** Become a programmer or programmer/analyst.

**Academic Options:** Transfer to NAU's computer science program.

Locations: East Campus, West Campus

Department/Contact Information:

Division Dean: 206-7694 (East Campus);  
206-6996 (West Campus)

**Transfer Options:** Students interested in pursuing a Bachelor's Degree in computer related fields have several options. If you are interested in transferring to:

- The UA Computer Science program, complete an Associate of Science degree. Refer to the UA Transfer Guide for Computer Science.
- The NAU-Tucson Computer Information Systems degree program, complete the PCC Computer Programmer/Analyst Associate of Applied Science degree. The NAU program can be completed entirely in Tucson.
- The UA Eller College of Management, Management Information Systems degree program, complete Pima's Associate of Business Administration Degree.
- The ASU W.P. Carey School of Business Computer Information Systems degree program, complete Pima's Associate of Business Administration Degree.

**Program Identification Code:** AASCMPPRGANL

*continued next page*



## Computer Programmer/Analyst — Associate of Applied Science Degree for Direct Employment – *continued*

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 and WRT 102 satisfy this requirement

Analysis and Critical Thinking Requirement ..... †  
MAT 172 and a lab science course satisfy this requirement

Humanities and Social Science Requirement ..... 3  
ECN 201 satisfies part of this requirement. Select a course from the General Education list in Humanities and Fine Arts or Leadership and Ethics that fulfills the cultural diversity (C) or the global awareness (G) requirement.

Computer and Information Literacy Requirement ..... †  
Satisfied by core courses.

**Subtotal ..... 3**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

CIS 131*	Programming and Problem Solving II (F-Sp)	5
CIS 141*	Introduction to VB.NET (F-Sp)	4
CIS 162*	Database Design and Development (F-Sp)	4
CIS 187*	Data Processing Projects I (F-Sp)	
or CIS 287*	Data Processing Projects II (n/o)	1-3
CIS 250*	Introduction to Assembly Language (F-Sp)	3
CIS 265*	The C Programming Language (F-Sp)	4
CIS 269*	Data Structures (F-Sp)	5
CIS 278*	C++ and Object Oriented Programming (F-Sp)	
or CIS 279*	Java Programming (F-Sp)	5
CIS 280*	Systems Analysis and Design: Concepts and Tools (F-Sp)	4
CIS 281*	Systems Analysis and Design: Applications (F-Sp)	3

**Subtotal ..... 38-40**

### Required Support Courses

ACC 101	Financial Accounting (F-Sp-S)	3
ECN 201*	Microeconomic Principles (F-Sp-S)	3
MAT 172*	Finite Mathematics (F-Sp-S)	3
WRT 101*	Writing I (F-Sp-S)	3
WRT 102*	Writing II (F-Sp-S)	3
Laboratory Science: Select one course from the following list:		4
AST 101/101LB/IN, 102/102LB		
BIO 100IN, 105IN, 181IN		
GEO 102IN		
GLG 101IN, GLG 102IN		

**Subtotal ..... 19**

CIS Elective: Select a course below for 3 credit hours. .... 3  
CIS 199, 220, 221, 225, 241, 266, 299

**Total credits as displayed ..... 63-65§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## iCarnegie Computer Programming — Certificate for Direct Employment

Learn essential programming skills including web-based software development, design and testing of software, programming languages, and data structures. Complete this program by taking classes exclusively on evenings/weekends.

The iCarnegie CTE certificate is a nationally recognized program offered at numerous colleges around the world.

**Before you can enroll**, you must complete CIS 129 and MAT 122.

### What can I do with this certificate?

**Career Options:** Become a programmer or programmer/analyst; complete the certification exam to receive iCarnegie certification.

**Academic Options:** Continue your studies by taking courses toward a Computer Programmer/Analyst or Associate of Science degree.

Locations: East Campus, West Campus

Department/Contact Information:

Division Dean: 206-7694 (East Campus);  
206-6996 (West Campus)

**Program Identification Code:** CRTICARNEGIE

Course Number	Course Title	Credit Hours
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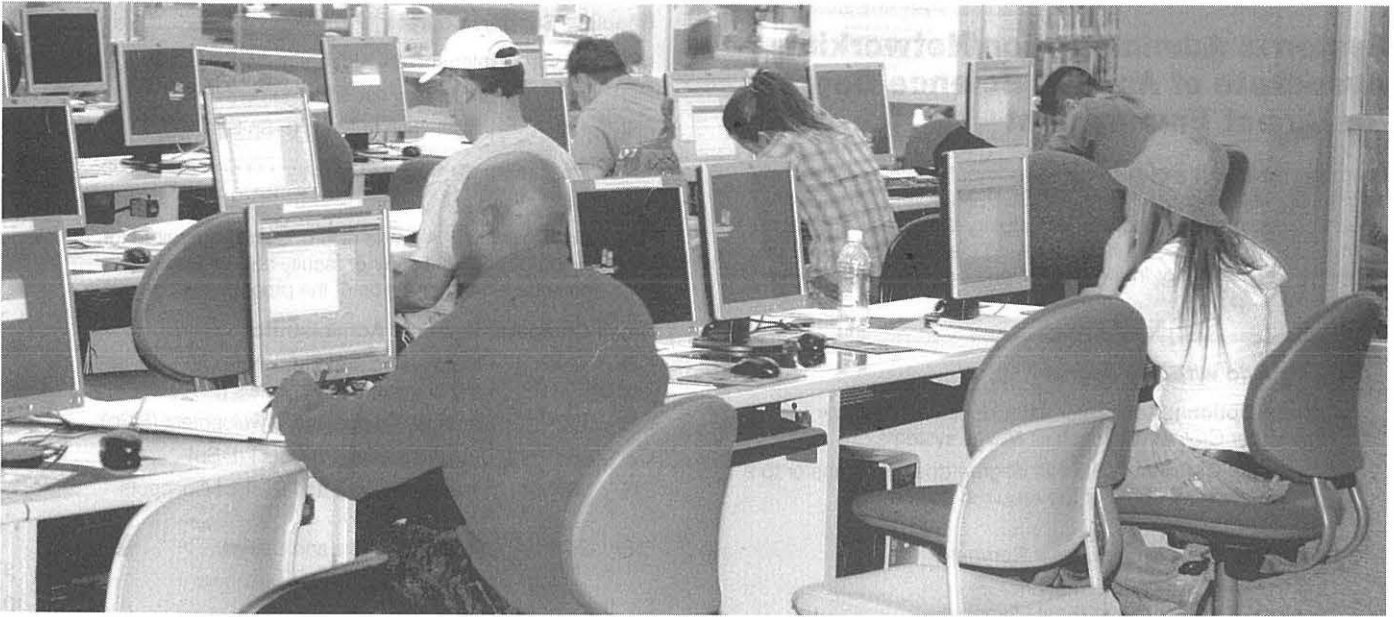
### Required Core Courses -

**A grade of C or better is required for graduation.**

ICG 175*	Introduction to Information Systems (Sp)	4
ICG 176	Introduction to Computer Systems (Sp)	4
ICG 177*	Object-Oriented Programming and Design (n/o)	4
ICG 178*	User-Centered Design and Testing (n/o)	4
ICG 179*	Data Structures and Algorithms (n/o)	4

**Total credits as displayed ..... 20**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Systems Administration/Networking — Certificate for Direct Employment

Pursue a systems administration or networking career. Concentrate on a specific type of system or follow the administrator concentration for a well-rounded exposure to network administration. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of daytime and evening classes.

### What can I do with this certificate?

**Career Options:** Become a CISCO, Linux, Microsoft or general network administrator.

**Academic Options:** Continue your studies by taking courses toward a System Administration/Networking or Associate of Science degree.

Locations: East Campus, West Campus

Department/Contact Information:

Division Dean: 206-7694 (East Campus);  
206-6996 (West Campus)

**Program Identification Code:** CRTNETWRKADM

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

Choose one of the following concentrations : ..... 17-20  
Department chair or faculty advisor approval is recommended  
in the selection of the program concentration.

### Systems Administration/Networking - CISCO

CIS	170*	CISCO I: Networking Fundamentals (F-Sp) .....	5
CIS	171*	CISCO II: Networking Router Technologies (F-Sp) . .	5
CIS	172*	CISCO III: Advanced Routing and Switching (F-Sp) .....	5
CIS	173*	CISCO IV: Project Based Learning (F-Sp) ....	5

### Systems Administration/Networking - Linux

CIS	136*	Microcomputer Components (F-Sp-S) or TEC 130/LB* Computer Assembly and Testing (F) .....	3-4
CIS	119*	Network Essentials (F-Sp) or CIS 170*	
		CISCO I: Networking Fundamentals (F-Sp) .....	3-5
CIS	137*	Introduction to the UNIX Operating System (F-Sp) . .	3
CIS	225*	Linux (UNIX) System and Network Administration (F-Sp) .....	4
CIS	226*	Advanced Linux Networking (F-Sp) .....	4

### Systems Administration/Networking - Microsoft

CIS	103*	Microsoft Windows XP Professional Administration (F-Sp) .....	4
CIS	221*	Microsoft Windows Server (F-Sp) .....	4
CIS	222*	Implementing Windows Network Infrastructure (F-Sp) .....	4
CIS	223*	Implementing Windows Directory Services (F) . . . .	4
CIS	224*	Designing Windows Network Security (S) . . . . .	4

### Systems Administration/Networking - Administrator

CIS	103*	Microsoft Windows XP Professional Administration (F-Sp-S) .....	4
CIS	119*	Network Essentials (F-Sp) .....	3
CIS	220*	Novell NetWare Networking and Administration (F-Sp) .....	4
CIS	221*	Microsoft Windows Server (F-Sp) .....	4
CIS	225*	LINUX (UNIX) System and Network Administration (F-Sp) .....	4

**Total credits as displayed ..... 17-20**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Systems Administration/Networking — Associate of Applied Science Degree for Direct Employment

Learn to install and administer small computer systems; or study networking technologies such as CISCO, Microsoft and Novell. Courses also prepare students for industry-standard certification exams. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of daytime and evening classes.

### What can I do with this degree?

**Career Options:** Administer microcomputer systems, administer CISCO, Microsoft or Novell systems.

**Academic Options:** While this degree does not transfer to a 4-year university, some of the required classes are transferable.

Locations: East Campus, West Campus

Department/Contact Information:

Division Dean: 206-7694 (East Campus);  
206-6996 (West Campus)

**Program Identification Code:** AASCOMPSYAD

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... †  
Satisfied by Support Courses MAT 122 and PHI 120

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
Satisfied by core courses.

**Subtotal** ..... **12**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

CIS 103\* Microsoft Windows XP Professional Administration (F-Sp-S) ..... 4

CIS 119\* Network Essentials (F-Sp)  
or CIS 170\* CISCO I: Networking Fundamentals (F-Sp) ..... 3-5

CIS 136\* Microcomputer Components (F-Sp-S) ..... 3

CIS 137\* Introduction to the UNIX Operating System (F-Sp) . . 3

CIS 220\* Novell NetWare Networking and Administration (F-Sp) ..... 4

CIS 221\* Microsoft Windows Server (F-Sp) ..... 4

CIS 225\* Linux (UNIX) System and Network Administration (F-Sp) ..... 4

**Subtotal** ..... **25-28**

### Required Support Courses

MAT 122 Intermediate Algebra (F-Sp-S) ..... 3

MGT 124 Small Business Management (F-Sp) ..... 3

PHI 120 Introduction to Logic (F-Sp-S) ..... 3

**Subtotal** ..... **9**

Core Concentrations: - A grade of C or better is required for graduation. Department chair or faculty advisor approval is recommended in the selection of the program concentration.

### Small Computer Systems Administrator

CIS 129\* Programming and Problem Solving I (F-Sp)  
or CIS 231\* Programming Fundamentals (F-Sp) ..... 4-5

CIS 162\* Database Design and Development (F-Sp) ..... 4

CIS 187\* Data Processing Projects I (F-Sp) ..... 1-3

CIS 280\* Systems Analysis and Design: Concepts and Tools (F-Sp) ..... 4

CIS 281\* Systems Analysis and Design: Applications (F-Sp) ..... 3

Elective: ..... 6-10

Complete 6-10 credits from the following courses:

ACC 101, 102, CIS 141, 199, 241, 250, 265, 269, 278, 279, 299

**Concentration Subtotal** ..... **22 -29**

### Administrator

CIS 170\* CISCO I: Networking Fundamentals (F-Sp) ..... 5

CIS 171\* CISCO II: Networking Router Technologies (F-Sp) ..... 5

CIS 172\* CISCO III: Advanced Routing and Switching (F-Sp) ..... 5

CIS 173\* CISCO IV: Project Based Learning (F-Sp) ..... 5

CIS 222\* Implementing Windows Network Infrastructure (F-Sp) ..... 4

CIS 223\* Implementing Windows Directory Services (F) ..... 4

CIS 224\* Designing Windows Network Security (Sp) ..... 4

CIS 226\* Advanced Linux Networking (F-Sp) ..... 4

**Concentration Subtotal** ..... **36**

**Total credits as displayed** ..... **68 - 85§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credit hours.

# Computer Software Applications

## Computer Software Applications for Office Professionals — Certificate for Direct Employment

Combine business and computer software skills to enhance your value in the workplace.

Master the most commonly used office software, including file management, Web-page creation and Microsoft Office programs. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Entry-level positions as administrative assistant, office manager or other office professional positions.

**Academic Options:** Continue your studies by pursuing a certificate or degree in business.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7186

**Program Identification Code:** CRTCSAPROFES

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
BUS 100	Introduction to Business (F-Sp-S)	3
CSA 101	Computer Fundamentals (F-Sp-S)	3
CSA 141*	Integrated Office Suite (F-Sp-S)	4
CSA 155	Microsoft FrontPage (F-Sp-S)	
or CSA 165*	Dreamweaver for Microsoft Windows I (F-Sp)	3
CSA 182	Microsoft Windows: Current Version (F-Sp-S)	3
<b>Subtotal</b>		<b>16</b>
<b>Business Electives</b>		
	Complete two courses (6-7 credits) from the following list with the approval of the department chair or faculty advisor.	6-7
ACC 100	Practical Accounting Procedures (F-Sp-S)	3
OAP 171*	Office Procedures (F-Sp)	4
BUS 148	Ethics in the Workplace (F-Sp-S)	3
MGT 130*	Improving Customer Service Quality (Sp)	3
<b>Total credits as displayed</b>		<b>22-23</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description

## Computer Software Applications Assistant — Certificate for Direct Employment

Learn software programs in the Windows operating environment. Complete this program by taking classes exclusively in the daytime on weekdays, exclusively on evenings/weekends, or in a combination of day or evening classes.

### What can I do with this certificate?

**Career Options:** Entry-level support positions requiring the production of documents, spreadsheets, databases and presentations.

**Academic Options:** Continue your studies by taking courses that lead to a Computer Software Applications Specialist Certificate.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7186

**Program Identification Code:** CRTCOMPAPPAD

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
OAP 111A	Computer Keyboarding and Document Production: Keyboard (F-Sp-S)	1
CSA 101	Computer Fundamentals (F-Sp-S)	3
CSA 110	Spreadsheets: Microsoft Excel (F-Sp-S)	3
CSA 120	Word Processing: Word (F-Sp-S)	3
CSA 130	PowerPoint (F-Sp-S)	3
CSA 152	Internet Browser: Microsoft Explorer (F-Sp-S)	2
CSA 170	Database: Access (F-Sp-S)	3
CSA 182A	Microsoft Windows: Current Version Module A (F-Sp-S)	1
CSA 182B	Microsoft Windows: Current Version Module B (F-Sp-S)	1
<b>Total credits as displayed</b>		<b>20</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Computer Software Applications Specialist — Certificate for Direct Employment

Increase your marketability by mastering the essentials of commonly used computer software applications. Complete this program by taking classes exclusively in the day, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Apply word processing, spreadsheets, database, presentation, desktop publishing and Web-page support skills in your current job or use them to help you advance your career.

**Academic Options:** Pursue other business career programs.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7186

**Program Identification Code:** CRTCOMPAPPSP

### General Education Requirements -

**A grade of C or better is required for graduation.**

Communication Requirement . . . . .	3
See General Education Section, page 56	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education Section, page 56	
<b>Subtotal . . . . .</b>	<b>6</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

OAP 111A (F-Sp-S)	Computer Keyboarding and Document Production 1	
CSA 101	Computer Fundamentals (F-Sp-S) . . . . .	3
CSA 110	Spreadsheets: Microsoft Excel (F-Sp-S) . . . . .	3
CSA 120	Word Processing: Word (F-Sp-S) . . . . .	3
CSA 130	PowerPoint (F-Sp-S) . . . . .	3
CSA 141*	Integrated Office Suite (F-Sp-S) . . . . .	4
CSA 152	Internet Browser: Microsoft Explorer (F-Sp-S) . . . . .	2
CSA 145 or CSA 155 or CSA 165	Microsoft Project Software (F-Sp-S) Microsoft FrontPage (F-Sp-S) Dreamweaver for Microsoft Windows I (F-Sp) . . . . .	3
CSA 170	Database: Access (F-Sp-S) . . . . .	3
CSA 182A	Microsoft Windows: Current Version Module A (F-Sp-S) . . . . .	1
CSA 182B	Microsoft Windows: Current Version Module B (F-Sp-S) . . . . .	1
<b>Subtotal . . . . .</b>		<b>27</b>
<b>Total credits as displayed . . . . .</b>		<b>33</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Microsoft Office Specialist (MOS) Master Certification Preparation — Certificate for Direct Employment

Master the Microsoft Office Suite and prepare for the MOS Certification exam. Complete this program by taking classes exclusively on weekends, weekdays or evening/weekends; in a combination of day, evening and weekend classes; or in a self-paced format.

### What can I do with this certificate?

**Career Options:** Entry-level to advanced administrative or office support positions with specialization in Microsoft Office computer applications.

**Academic Options:** Continue your studies by pursuing a certificate or degree in business or office administration.

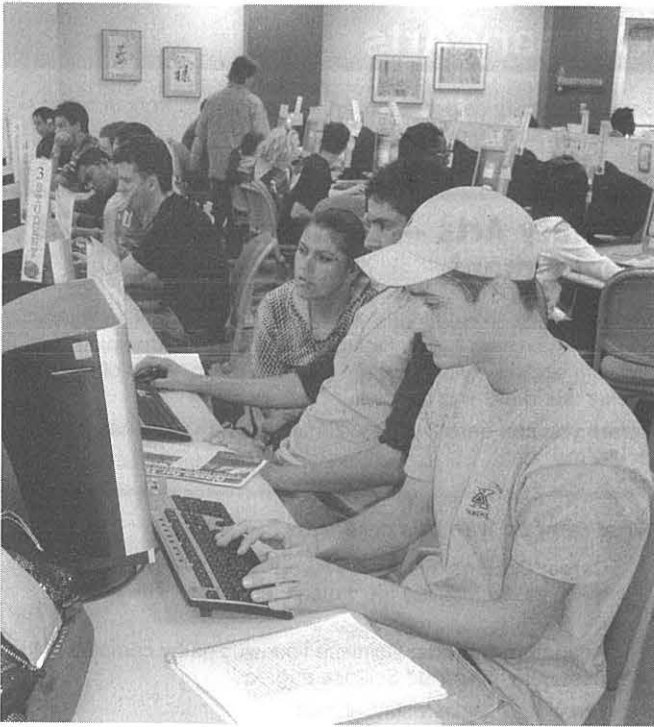
Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7174

**Program Identification Code:** CRTCSO

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
CSA 101	Computer Fundamentals (F-Sp-S) . . . . .	3
CSA 182A	Microsoft Windows: Current Version Module A (F-Sp-S) . . . . .	1
CSA 210*	Microsoft Excel Specialist Certification Preparation (F-Sp-S) . . . . .	2
CSA 211*	Integrating Microsoft Excel Projects (n/o) . . . . .	3
CSA 220*	Microsoft Word Specialist Certification Preparation (F-Sp) . . . . .	2
CSA 221*	Integrating Microsoft Word Projects (F-Sp) . . . . .	3
CSA 230*	Microsoft PowerPoint Specialist Certification Preparation (F-Sp) . . . . .	2
CSA 270*	Microsoft Access Specialist Projects (F-Sp) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>19</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Basic Software Applications for the Web: Macromedia — Certificate for Direct Employment

Master the most commonly used software for creating and managing professional web sites. Complete this program by taking classes exclusively on evenings/weekends.

### What can I do with this certificate?

**Career Options:** Entry-level positions as a web designer or consultant, or office manager with web site duties.

**Academic Options:** Continue your studies by pursuing a certificate or degree in Computer Information Systems or Digital Arts.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7174

**Program Identification Code:** CRTCSB

Course Number	Course Title	Credit Hours
<b>Required Core Course -</b>		
<b>A grade of C or better is required for graduation.</b>		
CSA 165*	Dreamweaver for Microsoft Windows I (F-Sp) . . . . .	3
CSA 166*	Dreamweaver for Microsoft Windows II (F-Sp) . . . . .	3
CSA 167*	Fireworks for Microsoft Windows (F-Sp) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>9</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Integrated Software Applications for the Web: Macromedia — Certificate for Direct Employment

Learn how to integrate advanced applications of the Macromedia Suite and Microsoft Office Suite on the Windows platform including incorporating documents, spreadsheets, dynamic databases and Flash movies on web pages. Complete this program by taking classes exclusively on evenings/weekends or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Seek entry-level positions or job advancement as a consultant or office professional with web site duties.

**Academic Options:** Continue your studies by pursuing a certificate or degree in Computer Information Systems or Digital Arts.

Location: Downtown Campus

Department/Contact Information: Division Dean: 206-7134; Lead Faculty: 206-7174

**Program Identification Code:** CRTCSI

Course Number	Course Title	Credit Hours
<b>Required Core Course -</b>		
<b>A grade of C or better is required for graduation.</b>		
CSA 110	Spreadsheets: Microsoft Excel (F-Sp-S) . . . . .	3
CSA 120	Word Processing: Word (F-Sp-S) . . . . .	3
CSA 165*	Dreamweaver for Microsoft Windows I (F-Sp) . . . . .	3
CSA 166*	Dreamweaver for Microsoft Windows II (F-Sp) . . . . .	3
CSA 167*	Fireworks for Microsoft Windows (F-Sp) . . . . .	3
CSA 168*	Flash for Microsoft Windows (Sp) . . . . .	3
CSA 170	Database: Access (F-Sp-S) . . . . .	3
CSA 266*	Dreamweaver for Microsoft Windows III (S) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>24</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Creative Writing

### Creative Writing — Emphasis for Transfer

A student planning to obtain a degree with a major in Creative Writing and transferring to ASU, NAU or UA should take the following courses while completing the **Associate of Arts in Liberal Arts degree**. Students should meet with Writing/English faculty to plan their course of study using the appropriate transfer guide.

#### Use Program Identification Code for Liberal Arts: AOALIBRALART

Complete the following Creative Writing courses:

WRT 205*	Introduction to Poetry Writing (3 credits) (F-Sp)
WRT 206*	Short Story Writing (3 credits) (F-Sp)
WRT 207*	Sophomore Composition: Creative Nonfiction (3 credits) (F-Sp)
WRT 215*	Advanced Poetry Writing (3 credits) (F-Sp)
WRT 216*	Advanced Fiction Writing (3 credits) (F-Sp)
WRT 217*	Advanced Composition: Creative Nonfiction (3 credits) (F-Sp)

In addition, the following courses are available as electives for this major:

WRT 226*	Special Projects in Fiction (3 credits) (F)
WRT 285	Pima Writers' Workshop (2 credits) (S)
DAR 224*	Advanced Screenwriting (3 credits) (F-Sp-S)

Complete the Associate of Arts in Liberal Arts Degree for Transfer:  
Use the Associate of Arts in Liberal Arts Degree for Transfer display in this catalog as a guide. Specifically:

Complete the Arizona General Education Curriculum (AGEC-A)  
See a Writing/English faculty advisor to complete a program of study form using the Transfer Guide for ASU, NAU or UA. Students transferring to other institutions should consult the specific requirements of the institution to which they plan to attend.

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Culinary Arts

Set your culinary career in motion and prepare to work in hotels, restaurants and resorts.

### Culinary Arts — Certificate for Direct Employment

Courses focus on cold foods, hot foods, baking, nutrition, safety and sanitation, and general restaurant operations. Complete the program exclusively on weekdays, or in a combination of day, weekend and evening classes.

**Before you can enroll**, you must interview with a Culinary Arts faculty member.

#### What can I do with this certificate?

**Career Options:** Gain entry-level employment as a cook, menu planner, dining room manager or other culinary positions.

**Academic Options:** Continue your studies by completing the Associate of Applied Science degree.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;

Lead Faculty: 206-5164

**Program Identification Code:** CRTCULNRYART

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
CUL 101	Principles of Restaurant Operations (F-Sp)	3
CUL 110	Food Service Nutrition (Sp-S)	2
CUL 115	Food Service Sanitation and Safety (F-Sp)	3
CUL 130	Hot Foods I (F-Sp)	3
CUL 140	Culinary Principles (Sp-S)	3
CUL 150	Garde Manger I (F-Sp)	3
CUL 160	Bakery and Pastry Production I (F-Sp)	3
CUL 230*	Hot Foods II (Sp-S)	3
CUL 250*	Garde Manger II (Sp-S)	3
CUL 260*	Bakery and Pastry Production II (Sp-S)	3
<b>Total credits as displayed</b>		<b>29</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Culinary Arts — Associate of Applied Science Degree for Direct Employment

Courses focus on culinary management, budgeting and hands-on food preparation. Complete the program exclusively on weekdays, or in a combination of day, weekend and evening classes.

**Before you can enroll**, you must interview with a Culinary Arts faculty member.

### What can I do with this degree?

**Career Options:** Become a cook, menu planner, caterer, dining room manager or work in other culinary positions.

**Academic Options:** While this degree is not intended to transfer to a 4-year university, many of the courses are transferable.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;

Lead Faculty: 206-5164

**Program Identification Code:** AASCULNRYART

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

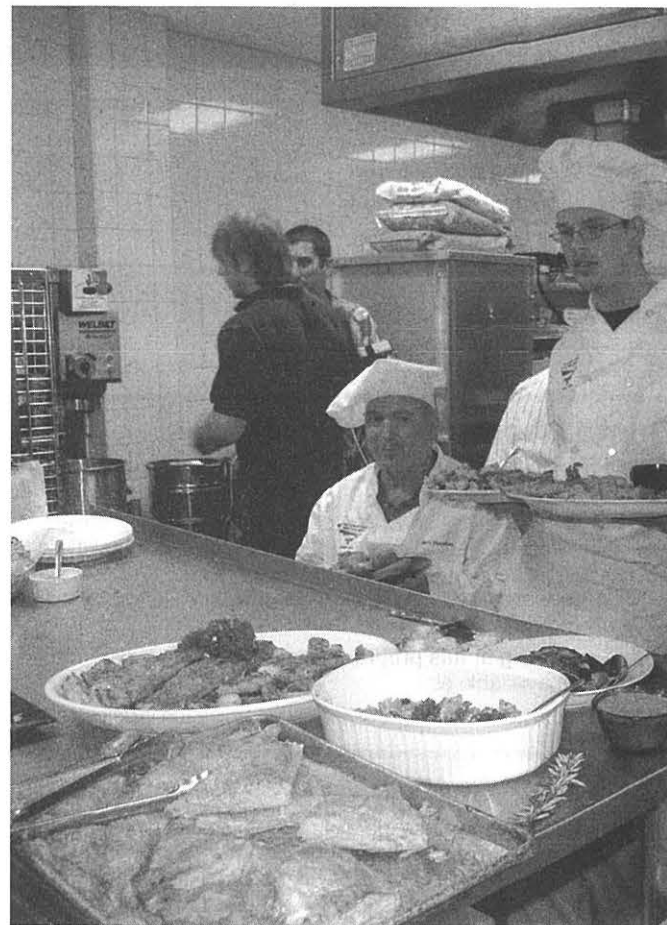
**Subtotal** ..... **19-21**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

CUL 101	Principles of Restaurant Operations (Sp-S) .....	3
CUL 110	Food Service Nutrition (Sp-S) .....	2
CUL 115	Food Service Sanitation and Safety (F-Sp) .....	3
CUL 130	Hot Foods I (F-Sp) .....	3
CUL 140	Culinary Principles (Sp-S) .....	3
CUL 150	Garde Manger I (F-Sp) .....	3
CUL 160	Bakery and Pastry Production I (F-Sp) .....	3
CUL 180	Food In History (F-Sp) .....	3
CUL 185	Catering Operations I (Sp-S) .....	2
CUL 230*	Hot Foods II (Sp-S) .....	3
CUL 250*	Garde Manger II (Sp-S) .....	3
CUL 260*	Bakery and Pastry Production II (Sp-S) .....	3
<b>Subtotal</b> .....		<b>36</b>



### Required Support Courses

Select three courses from the following list to total nine credits:

ACC 100	Practical Accounting Procedures (F-Sp-S) .....	3
CUL 161	Cake Decorating and Candy Making (F-Sp-S) .....	3
CUL 199*	Introduction to Co-Op: Culinary Arts (n/o) .....	1
CUL 199WK*	Co-op Work: Culinary Arts (n/o)** .....	1-3
CUL 261*	Advanced Cake Decorating and Candy Making (F-Sp-S) .....	3
HRM 104	Hotel Food and Beverage Management (F) .....	3
HRM 235*	Hospitality Law (F) .....	3
HRM 245*	Hospitality Human Resource Management (Sp) .....	3

**Subtotal** ..... **9**

**Total credits as displayed** ..... **64-66§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Department Chair approval of work experience needed

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Dental Studies

Complete programs to work in direct patient care as a dental hygienist or assistant, or prepare for a career in a dental laboratory.

- Dental Hygiene
- Dental Assisting Education
- Dental Laboratory Technologies

## Dental Assisting Education

### Dental Assisting Education — Certificate for Direct Employment

Learn to assist dentists and other dental professionals in patient care. Complete at least 336 hours of clinical work in dental clinics or offices. This program is accredited by the American Dental Association Commission on Dental Accreditation. Complete this program exclusively on weekdays.

**Before enrolling in this program**, please complete a program application, available at:

[http://www.pima.edu/mhtml/hrp\\_request\\_application/index.shtml](http://www.pima.edu/mhtml/hrp_request_application/index.shtml)

#### What can I do with this certificate?

**Career Options:** Take the exams to gain national certification or Arizona oral radiography licensure. Work as a dental assistant in hospitals, clinics and dental offices.

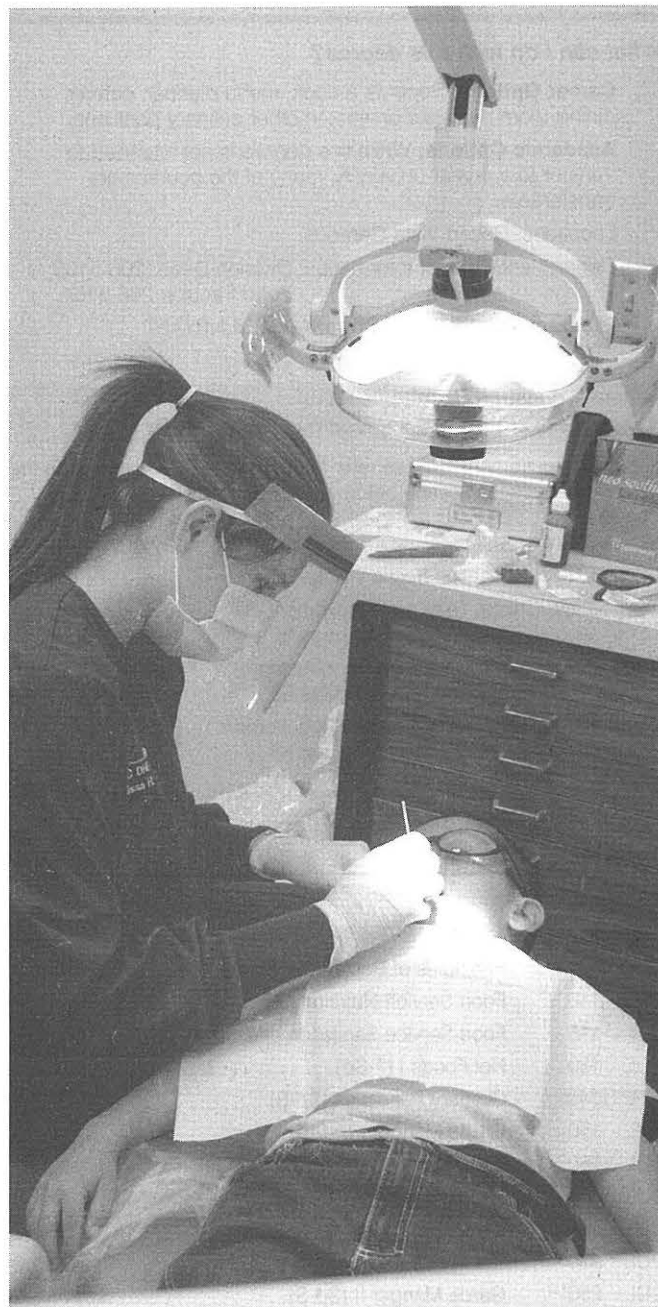
**Academic Options:** Continue your studies by taking courses toward the Dental Hygienist AAS degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-3101

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
DAE 159*	Introduction to Health Care for Dental Assisting (F) . . . . .	2
DAE 160*	Orientation to Dental Care (F) . . . . .	1
DAE 161*	Biomedical Dental Science (F) . . . . .	3
DAE 162/162LB*	Dental Assisting I (F) . . . . .	3
DAE 163/163LC*	Oral Radiography (F) . . . . .	3
DAE 164/164LB*	Dental Materials (F) . . . . .	3
DAE 165/165LB*	Pre-Clinical Procedures (F) . . . . .	2
DAE 166*	Dental Assisting II (Sp) . . . . .	3
DAE 167*	Dental Assisting III (Sp) . . . . .	3
DAE 190LC*	Clinical Procedures (Sp) . . . . .	6
<b>Total credits as displayed . . . . .</b>		<b>29</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



# Dental Hygiene

## Dental Hygiene — Associate of Applied Science Degree for Direct Employment

Learn dental hygiene and dental health education. This program is accredited by the American Dental Association Commission on Dental Accreditation. Complete this program in a combination of day, evening and weekend classes.

Before you can enroll, you must meet certain requirements:

This degree requires a special program application. Students may request a program application, (available at [http://www.pima.edu/mhtml/hrp\\_request\\_application/index.shtml](http://www.pima.edu/mhtml/hrp_request_application/index.shtml)) when all prerequisites are complete.

Student must have completed the following basic requirements before they may begin the application process.

- Reading assessment score of 90 or completion of REA 112.
- Math assessment score at MAT 151 or higher, or completion of MAT 122.
- Completion of CHM 140, BIO 201IN, BIO 202IN, and BIO 205 with a combined average grade of B or better within the last eight years.

### What can I do with this degree?

**Career Options:** Take national and regional exams in preparation for state licensure, then work in general or specialty dental offices, hospitals, schools and public health agencies.

**Academic Options:** Continue your studies at Northern Arizona University for a B.S. in Dental Hygiene.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-6916,  
206-3099, 206-3096

### General Education Requirements -

#### A grade of C or better is required for graduation.

Reading Requirement

Satisfied by program prerequisites

Communication Requirement . . . . . †  
WRT 101 and WRT 102 fulfill this requirement

Analysis and Critical Thinking Requirement . . . . . †  
Satisfied by program prerequisites.

Humanities and Social Science Requirement . . . . . 3  
SOC 101 fulfills 3 credits of this requirement. See General Education Section, page 56

Computer and Information Literacy Requirement . . . . . †  
DHE 209/209LB fulfills this requirement.

**Subtotal . . . . . 3**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

DHE 101/101LC*	Pre-Clinical Dental Hygiene (F) . . . . .	4
DHE 104/104LB*	Dental And Oral Morphology (F) . . . . .	3
DHE 107*	Oral Embryology And Histology (F) . . . . .	2
DHE 116/116LC*	Oral Radiography (F) . . . . .	3
DHE 119*	Periodontology (Sp) . . . . .	1
DHE 120*	Oral Pathology (Sp) . . . . .	2
DHE 121*	Preventive Dentistry and Nutrition (F) . . . . .	3
DHE 190/190LC*	Clinical Dental Hygiene I (Sp) . . . . .	4
DHE 191/191LB*	Clinical Dental Hygiene II (S) . . . . .	3
DHE 204/204LB*	Dental Materials (S) . . . . .	3
DHE 207*	Pharmacology (S) . . . . .	3
DHE 208LB*	Pain and Anxiety Control for Dental Hygiene (n/o) . . . . .	1
DHE 209/209LB*	Computers And Practice Management (F) . . . . .	2
DHE 213/213LB*	Advanced Periodontal Services (Sp) . . . . .	2
DHE 216*	Community and Dental Health Education (Sp) . . . . .	3
DHE 290/290LC*	Clinical Dental Hygiene III (F) . . . . .	6
DHE 291/291LC*	Clinical Dental Hygiene IV (Sp) . . . . .	4
<b>Subtotal . . . . .</b>		<b>49</b>

### Required Support Courses

PSY 100A	Psychology I (F-Sp)	
or PSY 101*	Introduction to Psychology (F-Sp-S) . . . . .	3-4
SOC 101	Introduction to Sociology (F-Sp-S) . . . . .	3
SPE 102	Introduction to Speech Communication (F-Sp-S) . . . . .	3
WRT 101	Writing I (F-Sp-S) . . . . .	3
WRT 102	Writing II (F-Sp-S) . . . . .	3

**Subtotal . . . . . 15-16**

**Total credits as displayed . . . . . 67-68§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the requirements are fulfilled with a minimum of 60 credits.

# Dental Laboratory Technologies

## Dental Laboratory Technology — Associate of Applied Science Degree for Direct Employment

Learn the skills to construct and repair dentures and other dental work. Get 1,492 clock hours of laboratory practice. This program is accredited by the American Dental Association Commission on Dental Accreditation. Complete this program exclusively on weekdays, or in a combination of day and evening classes.

**Before enrolling in this program**, please complete a program application (available at: [http://www.pima.edu/mhtml/hrp\\_request\\_application/index.shtml](http://www.pima.edu/mhtml/hrp_request_application/index.shtml))

### What can I do with this degree?

**Career Options:** Qualify to take the Recognized Graduate Exam of the National Association of Dental Laboratories/ National Board for Certification. Work in a dental lab.

**Academic Options:** Pursue additional professional development opportunities in the field.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-3100

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6

Analysis and Critical Thinking Requirement ..... 1-3  
CHM 130/130LB/IN and the MAT course fulfill this requirement if at least 6 credits. See General Education section, page 56

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

**Subtotal** ..... **14-18**



Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

DLT	101/101LB*	Dental Morphology (F) .....	3
DLT	102*	Non-Metallic Dental Materials (n/o) .....	3
DLT	103/103LB*	Complete Dentures (n/o) .....	4
DLT	104/104LB*	Dental Occlusion** (n/o) .....	4
DLT	105/105LB*	Partial Denture Construction (n/o) .....	4
DLT	106/106LB*	Orthodontics and Maxillofacial Construction (n/o) .....	3
DLT	108*	Laboratory Management (Sp) .....	3
DLT	201/201LB*	Dental Laboratory I (F) .....	3
DLT	202*	Dental Metallurgy (F) .....	3
DLT	203/203LB*	Fixed Bridgework (F) .....	4
DLT	204/204LB*	Dental Laboratory II (Sp) .....	3
DLT	206/206LB*	Dental Ceramics (Sp) .....	4
DLT	207/207LB*	Advanced Dental Laboratory Technology (Sp) ..	6
<b>Subtotal</b> .....			<b>47</b>

### Required Support Course

CHM	130/130LB/IN	Fundamental Chemistry (F-Sp-S) .....	5
MAT		Any course at the 100 or higher level .....	1-4
MGT	124	Small Business Management (F-Sp) .....	3
<b>Subtotal</b> .....			<b>9-12</b>
<b>Total credits as displayed</b> .....			<b>70-74§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

## Complete Dentures Technologist — Certificate in for Direct Employment

This accelerated program teaches skills for specialized work in a dental laboratory. It also prepares you to earn certificates in other dental laboratory specialties. Complete this program exclusively on weekdays, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Work in a dental lab constructing complete dentures. Increase opportunities for employment and promotion within the dental laboratory industry.

**Academic Options:** Pursue a degree in Dental Laboratory Technology AAS. Take classes to earn other specialized certificates.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-3100

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
DLT 101/101LB	Dental Morphology** (F)	3
DLT 102*	Non-Metallic Dental Materials (n/o)	3
DLT 103/103LB*	Complete Dentures (n/o)	4
DLT 108*	Laboratory Management** (Sp)	3
<b>Total credits as displayed</b>		<b>13</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Please note that DLT 101/101 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

## Dental Ceramics Technologist — Certificate for Direct Employment

This accelerated program teaches skills for specialized work in a dental laboratory. It also helps you earn certificates in other dental laboratory specialties. Complete this program exclusively on weekdays, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Work in a dental lab constructing implants, crowns and other dental ceramic work. Increase opportunities for employment and promotion within the dental laboratory industry.

**Academic Options:** Pursue a degree in Dental Laboratory Technology AAS. Take classes to earn other specialized certificates.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-3100

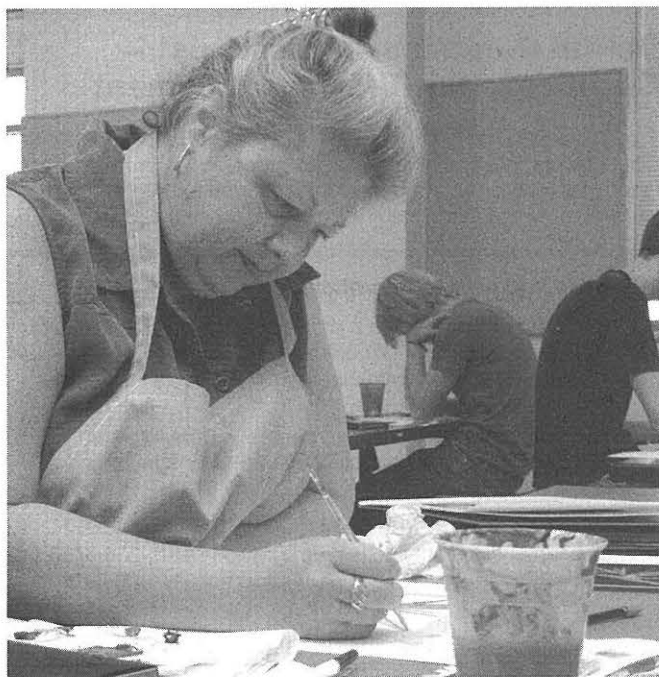
Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
DLT 101/101LB	Dental Morphology** (F)	3
DLT 108*	Laboratory Management** (Sp)	3
DLT 204/204LB*	Dental Laboratory II (Sp)	3
DLT 206/206LB*	Dental Ceramics (Sp)	4
DLT 207/207LB *	Advanced Dental Laboratory Technology (Sp)	6
<b>Total credits as displayed</b>		<b>19</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Please note that DLT 101/101 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.







## Fixed Bridgework Technologist — Certificate for Direct Employment

This accelerated program teaches skills for specialized work in a dental laboratory. It also helps you earn certificates in other dental laboratory specialties. Complete this program exclusively on weekdays, or in a combination of day and evening.

### What can I do with this certificate?

**Career Options:** Work in a dental lab constructing fixed bridges. Increase opportunities for employment and promotion within the dental laboratory industry.

**Academic Options:** Pursue a degree in Dental Laboratory Technology AAS. Take classes to earn other specialized certificates.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-3100

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
DLT 101/101LB	Dental Morphology** (F)	3
DLT 108*	Laboratory Management** (Sp)	3
DLT 201/201LB*	Dental Laboratory I (F)	3
DLT 202*	Dental Metallurgy (F)	3
DLT 203/203LB*	Fixed Bridgework (F)	4
<b>Total credits as displayed</b>		<b>16</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Please note that DLT 101/1 01 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

## Partial Dentures Technologist — Certificate for Direct Employment

This accelerated program teaches skills for specialized work in a dental laboratory. It also helps you earn certificates in other dental laboratory specialties. Complete this program exclusively on weekdays, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Work in a dental lab constructing partial dentures. Increase opportunities for employment and promotion within the dental laboratory industry.

**Academic Options:** Pursue a degree in Dental Laboratory Technology AAS. Take classes to earn other specialized certificates.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-3100

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
DLT 101/101LB	Dental Morphology** (F)	3
DLT 104/104LB*	Dental Occlusion ** (n/o)	4
DLT 105/105LB*	Partial Denture Construction (n/o)	4
DLT 106/106LB*	Orthodontics and Maxillofacial Construction (n/o)	3
DLT 108*	Laboratory Management** (Sp)	3
<b>Total credits as displayed</b>		<b>17</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Please note that DLT 101/1 01 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

# Digital Arts

Whether your medium is print or film, television or the web, sharpen your skills and enhance your career prospects with these hands-on programs. Students wishing to prepare to transfer to a 4-year university program in audio, film and/or video should follow the Associate of Arts degree.

## Digital Arts — Certificate for Direct Employment

Prepare for entry level positions in the digital arts. Choose from concentrations in graphic design, desktop publishing or web design. Complete this program by taking classes exclusively on weekdays, or in a combination of day and evening classes.

**Before enrolling in this program**, you must complete DAR 100, 103, and either DAR 051 or 120.

### What can I do with this certificate?

**Career Options:** Become a graphic designer, desktop publisher or web designer.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6840

**Program Identification Code:** CRTCOMMGRAPH

### General Education Requirements -

**A grade of C or better is required for graduation.**

Communication Requirement	3
See General Education Section, page 56	
Analysis and Critical Thinking Requirement	3
See General Education Section, page 56	
<b>Subtotal</b>	<b>6</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

DAR 101*	Color Rendering and Theory (F-Sp-S)	4
DAR 111*	Typography (F-Sp-S)	4
DAR 112*	Graphic Design I (F-Sp-S)	4
DAR 220*	DeskTop Publishing for Digital Arts: QuarkXpress (F-Sp)	
or DAR 226*	DeskTop Publishing for Digital Arts: Adobe InDesign (F-Sp)	4
<b>Subtotal</b>		<b>16</b>

### Required Support Courses -

**A grade of C or better is required for graduation.**

Complete 12 credit hours in DAR elective courses above the 100 level (excluding DAR 100, 103, and 120). (Department faculty advisor or counselor approval is recommended in the selection of the DAR elective courses.)	
Electives	12
<b>Total credits as displayed</b>	<b>34</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

Pima Community College Catalog 2007/2008

## Digital Arts — Associate of Applied Science Degree for Direct Employment

Prepare for a career in design, illustration, multimedia, web design or printing technology. Complete this program exclusively on week days, or in a combination of day, evening and weekend classes.

**Before enrolling in this program** students must complete DAR 100, 103, and DAR 051 or 120.

### What can I do with this degree?

**Career Options:** Become a print designer, web designer, illustrator, multimedia artist or press operator.

**Academic Options:** Transfer to a Bachelor of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6840

**Program Identification Code:** AASCOMMGRAPH

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement	6
See General Education Section, page 56	
Analysis and Critical Thinking Requirement	6
See General Education Section, page 56	
Humanities and Social Science Requirement	3
Any required support course will fulfill 3 credits of this requirement. Select a course from either Social Sciences or Leadership and Ethics that fulfills the cultural diversity (c) or global awareness (g) requirement, page 56	
Computer and Information Literacy Requirement	1
Core courses fulfill this requirement.	
<b>Subtotal</b>	<b>15</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

DAR 101*	Color Rendering and Theory (F-Sp-S)	4
DAR 111*	Typography (F-Sp-S)	4
DAR 112*	Graphic Design I (F-Sp-S)	4
DAR 122*	DeskTop Graphics: Adobe Illustrator (F-Sp-S)	4
DAR 210*	Digital Arts Design Studio: Advertising Design (F-Sp-S)	4
DAR 214*	Digital Arts Business and Portfolio (F-Sp-S)	2
DAR 220*	DeskTop Publishing for Digital Arts: QuarkXpress (F-Sp)	4
DAR 221*	Photo Image Editing: Adobe PhotoShop (F-Sp-S)	4
DAR 230*	Production Techniques for Print (F-Sp-S)	4
<b>Subtotal</b>		<b>34</b>

*continued next page*

**Required Support Course**

ART 105	Understanding Art (F-Sp-S)	
or ART 130	Art and Culture: Prehistoric Through Gothic (F-Sp-S)	
or ART 131	Art and Culture: Late Gothic Through Modern Periods (F-Sp-S)	3
<b>Subtotal</b>		<b>3</b>

**Core Concentrations -****A grade of C or better is required for graduation.**

Choose one of the following concentrations: ..... 16  
(Department faculty advisor or counselor approval is recommended in the selection of the program concentration.)

**Design**

Complete 16 credit hours from the following list:

DAR 128	Digital Photography I (F-Sp)	4
DAR 211*	Digital Arts Design Studio: Product Design (F-Sp-S)	4
DAR 212	Digital Arts Design Studio: Package Design (F-Sp-S)	4
DAR 226*	Desktop Publishing for Digital Arts: Adobe InDesign (F-Sp)	4
DAR 256*	Web Design (F-Sp)	4

**Illustration**

Complete 16 credit hours from the following list:

DAR 140*	Digital Arts Illustration Studio: Illustration Technique and Media (F-Sp-S)	4
DAR 145*	Digital Arts Illustration Studio: Character Development for Animation & Print (F-Sp-S)	4
DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop (F-Sp)	4
DAR 223*	Digital Drawing and Painting (F-Sp)	4
DAR 240	Digital Arts Illustration Studio: Book Illustration (F-Sp-S)	4

**Multimedia**

DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop (F-Sp)	
or DAR 223*	Digital Drawing and Painting (F-Sp)	
or DAR 115	Digital Video Editing (F-Sp)	4
DAR 250*	Computer 2D Animation: Adobe After Effects (F-Sp)	4
DAR 251*	Computer 3D Animation: Maya (Sp-F)	4
DAR 252*	Digital Multimedia Design I (F-Sp)	4

**Web Design**

DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop (F-Sp-S)	4
DAR 252*	Digital Multimedia Design I (F-Sp)	4
DAR 256*	Web Design (F-Sp)	4
DAR 257*	Advanced Web Design (F-Sp)	4

**Total credits as displayed** ..... **68§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Digital Arts — Post-Degree Certificate for Direct Employment

Learn advanced skills required for higher level digital arts positions such as graphic design, desktop publishing, web design or assistant art director. Complete this program by taking classes exclusively on weekdays, or in a combination of daytime and evening classes.

**Before enrolling in this program**, you must you must fulfill certain requirements:

Students planning to enroll in this program must have earned:

- an associate degree in digital arts
- an associate or bachelor's degree in a related field with a portfolio review

**What can I do with this certificate?**

**Career Options:** Obtain positions requiring advanced skills in graphic design, desktop publishing or web design.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6840

**Major Code:** DAR

**Program Identification Code:** CRDDAR

Course Number	Course Title	Credit Hours
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**Required Core Courses -****A grade of C or better is required for graduation.**

DAR 212*	Digital Arts Design Studio: Package Design (F-Sp-S)	4
DAR 222*	Advanced Photo Image Editing: Adobe Photoshop (F-Sp)	4
DAR 228*	Advanced Desktop Graphics: Adobe Illustrator (n/o)	4
DAR 235*	Advanced Design and Production Applications (F)	4
DAR 254*	Digital Multimedia Design II (F-Sp)	4
DAR 288*	Digital Arts Capstone (n/o)	4
<b>Subtotal</b>		<b>24</b>

Choose eight credits (8) not used in an associate or bachelor's degree from the following list or other related courses with the approval of the department chair or faculty advisor.

DAR 211*	Digital Arts Design Studio: Product Design (F-Sp-S)	4
DAR 223*	Digital Drawing and Painting (F-Sp)	4
DAR 236*	Advanced Desktop Publishing (Sp)	4
DAR 250*	Computer 2D Animation: Adobe After Effects (F-Sp)	4
DAR 251*	Computer 3D Animation: Maya (F-Sp)	4
DAR 252*	Digital Multimedia Design I (F-Sp)	4
DAR 256*	Web Design (F-Sp)	4
DAR 257*	Advanced Web Design (F-Sp)	4
<b>Subtotal</b>		<b>8</b>

**Total credits as displayed** ..... **32**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

## Digital and Film Arts — Certificate for Direct Employment

Learn to work with various film, digital video and analog video formats; how to purchase and repair equipment; and how to assess media production needs. Program includes internship opportunities at television stations, production centers, industrial video facilities and audio production studios. Complete this program by taking classes exclusively on weekdays, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Become a media center manager; television camera person, news tape editor or commercial producer; script writer or audio technician.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6840

**Program Identification Code:** CRTDIGIFILM

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 fulfills this requirement.

Analysis and Critical Thinking Requirement ..... 3  
See General Education Section, page 56

**Subtotal** ..... 3

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

DAR 103 Introduction to Digital Arts (F-Sp-S) ..... 3

DAR 115 Digital Video Editing (F-Sp) ..... 4

DAR 124\* Writing for Film and Television (F-Sp-S) ..... 3

DAR 125\* Beginning Video Production (F-Sp-S) ..... 3

DAR 173 History of American Cinema (F-Sp) ..... 3

DAR 175\* Cinematography (F-Sp-S) ..... 3

DAR 205\* Lighting for Film and Video (F-Sp-S) ..... 4

DAR 275\* Basic Audio Production (F-Sp) ..... 4

DAR 285 Documentary Television and Film  
Production (F-Sp) ..... 4

**Subtotal** ..... 31

### Required Support Course

WRT 101 Writing I (F-Sp-S) ..... 3

ELEC Electives ..... 3-4

Complete 3-4 credit hours from the following list  
with the approval of the department chair or faculty advisor:  
DAR 215\*, 217\*, 225\*, 276\*, 290E2\*

**Subtotal** ..... 6-7

**Total credits as displayed** ..... 40-41

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

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## Digital and Film Arts — Associate of Applied Science Degree for Direct Employment

Prepare for a career in television, film, video or other media. Courses cover filming, editing, production, design, lighting, script writing and photography. Students also have internship opportunities. Students seeking to transfer into a digital/film arts program at a university should pursue an Associate of Arts degree. Complete this program by taking classes exclusively on evenings/weekends, or in any combination of daytime and evening classes.

### What can I do with this degree?

**Career Options:** Leads to careers in television, film and audio production, including producer, editor, director, writer, camera operator, sound designer, web designer and graphic designer.

**Academic Options:** Transfer to a Bachelor of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6840

**Program Identification Code:** AASDIGIFILM

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 and 102 fulfill this requirement.

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
CSA 101 fulfills this requirement.

**Subtotal** ..... 12

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

DAR 103 Introduction to Digital Arts (F-Sp-S) ..... 3

DAR 115 Digital Video Editing (F-Sp) ..... 4

DAR 124\* Writing for Film and Television (F-Sp-S) ..... 3

DAR 125\* Beginning Video Production (F-Sp-S) ..... 3

DAR 173 History of American Cinema (F-Sp) ..... 3

DAR 175\* Cinematography (F-Sp) ..... 3

DAR 205\* Lighting for Film and Video (F-Sp-S) ..... 4

DAR 215\* Advanced Cinematography (F-Sp) ..... 4

DAR 217\* Post Production for Film (F-Sp-S) ..... 4

DAR 225\* Advanced Video Production (F-Sp-S) ..... 4

DAR 275\* Basic Audio Production (F-Sp) ..... 4

DAR 285\* Documentary Television and Film  
Production (F-Sp) ..... 4

**Subtotal** ..... 43

*continued next page*



**Required Support Courses**

CSA 101	Computer Fundamentals (F-Sp-S)	3
WRT 101	Writing I (F-Sp-S)	3
WRT 102*	Writing II (F-Sp-S)	3
Electives		3-4
Select 3-4 credits from the following list: DAR 127, 174, 176, 177, 224, 276, 277, 281, 290E2, 296		
<b>Subtotal</b>		<b>12-13</b>
<b>Total credits as displayed</b>		<b>67-68§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Digital and Film Arts Animation — Associate of Applied Science Degree for Direct Employment

Develop skills in animation, cinematography, video production and script writing. Courses also cover drawing, illustration, cartooning, digital imaging and computer animation. Students seeking to transfer into a digital/film animation program at a university should complete an Associate of Arts degree. Complete this program by taking classes exclusively on evenings/ weekends, or in a combination of day and evening classes.

**Before you enroll in this program** you must complete DAR 100, 103, and either DAR 051 or 120.

### What can I do with this degree?

**Career Options:** Obtain employment as a writer, producer, editor, director, camera operator, sound designer or graphic artist.

**Academic Options:** Transfer to a Bachelor of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6690;  
Lead Faculty: 206-6840

**Program Identification Code:** AASANIMATION

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement .....†  
WRT 101 and 102 fulfill this requirement.

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 3  
DAR 250 fulfills 3 credits of this requirement. Select a course from Social Sciences or Leadership and Ethics, page 56

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

**Subtotal** ..... **10-12**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

DAR 101*	Color Rendering and Theory (F-Sp-S)	4
DAR 115	Digital Video Editing (F-Sp)	4
DAR 122*	Desktop Graphics: Adobe Illustrator (F-Sp-S)	4
DAR 124*	Writing for Film and Television (F-Sp-S)	3
DAR 125*	Beginning Video Production (F-Sp-S)	3
DAR 140*	Digital Arts Illustration Studio: Illustration Technique and Media	4
DAR 173*	History of American Cinema (F-Sp)	3
DAR 175*	Cinematography (F-Sp-S)	3
DAR 176	Film Animation (F-Sp)	3
DAR 221*	Photo Image Editing: Adobe PhotoShop (F-Sp-S)	4
DAR 223*	Digital Drawing and Painting (F-Sp)	4
DAR 250*	Computer 2-D Animation: Adobe After Effects (F-Sp)	4
DAR 251*	Computer 3-D Animation: Maya (F-Sp)	4
<b>Subtotal</b>		<b>47</b>

### Required Support Courses

WRT 101*	Writing I (F-Sp-S)	3
WRT 102*	Writing II (F-Sp-S)	3
<b>Subtotal</b>		<b>6</b>
<b>Total credits as displayed</b>		<b>63-65§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Digital and Film Arts — Associate of Arts Degree for Transfer

A student planning on obtaining a Digital and Film Arts degree should follow the **Associate of Arts in Liberal Arts Degree for Transfer**.

The program is designed to prepare students to transfer to a four-year college or university program in audio, film, and/or video. Good writing skills and creative background in art, design, computers, and photography are helpful in this degree option.

Verification of transfer courses should be established with the transfer university or college or a Pima Community College counselor or faculty advisor.

**Program Identification Code:** AOALIBRALART

# Education

From infancy through high school, from classroom basics to advanced certification, gain the skills to educate tomorrow's leaders.

- Early Childhood Education
- K-12 Education
- Educational Technology

## Early Childhood Education and Child Development Associate

Prepare to care for infants, toddlers and school-age children by learning how children think, grow and develop.

### Teacher Aide/Assistant — Certificate for Direct Employment

Learn how children communicate, grow and develop. Acquire age-appropriate teaching techniques for the classroom. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

#### What can I do with this certificate?

**Career Options:** Paraprofessional (teacher's aide) in a preschool, Pre-K classroom, or homecare setting.

**Academic Options:** Continue your studies by completing the Teacher/Director degree.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;

Lead Faculty: 206-5158

**Program Identification Code:** CRTTEACHAIDE

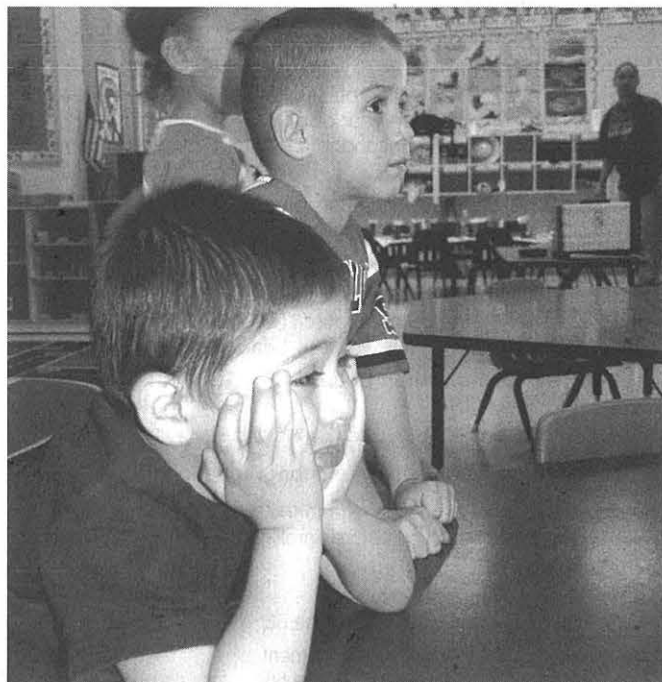
#### General Education Requirements -

**A grade of C or better is required for graduation.**

Communication Requirement ..... 3  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 3  
See General Education Section, page 56

**Subtotal** ..... 6



Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

ECE 108	Literature/Social Studies for Children (F-Sp-S) . . . . .	3
ECE 110	Communication and Language: Early Literacy for Children (F-Sp-S) . . . . .	3
ECE 112	Music and Art for Children (F-Sp) . . . . .	3
ECE 117*	Child Growth and Development (F-Sp-S) . . . . .	3
ECE 124*	Math and Science for Children (F-Sp-S) . . . . .	3
ECE 190*	Beginning Level Internship in Early Childhood Education (F-Sp-S) . . . . .	4
ECE 226*	Teaching Techniques and Behavior Management (Sp) . . . . .	3
ECE 228	The Young Child: Family, Culture, & Community (F) . . . . .	3
EDU 200	Introduction to Education (F-Sp-S) . . . . .	3
<b>Subtotal</b> . . . . .		<b>28</b>

#### Required Support Course

WRT 100 Writing Fundamentals (F-Sp-S) . . . . . 3

**Subtotal** . . . . . 3

**Total credits as displayed** . . . . . 37

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Teacher/Director — Associate of Applied Science Degree for Direct Employment

Become a teacher's aide or a director of an early child care center. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Become a paraprofessional (teacher's aide), lead teacher, or director of a pre-school center. Work for a school district as a paraprofessional or teacher in a preschool or Pre\_K setting. Open your own homecare center. Work in a field related to early childhood (i.e., child advocacy, home visitor, etc.).

**Academic Options:** While this program is designed for direct employment, many of the courses can transfer to a four-year degree program.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;  
Lead Faculty: 206-5158

**Program Identification Code:** AASTEACHDRCT

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

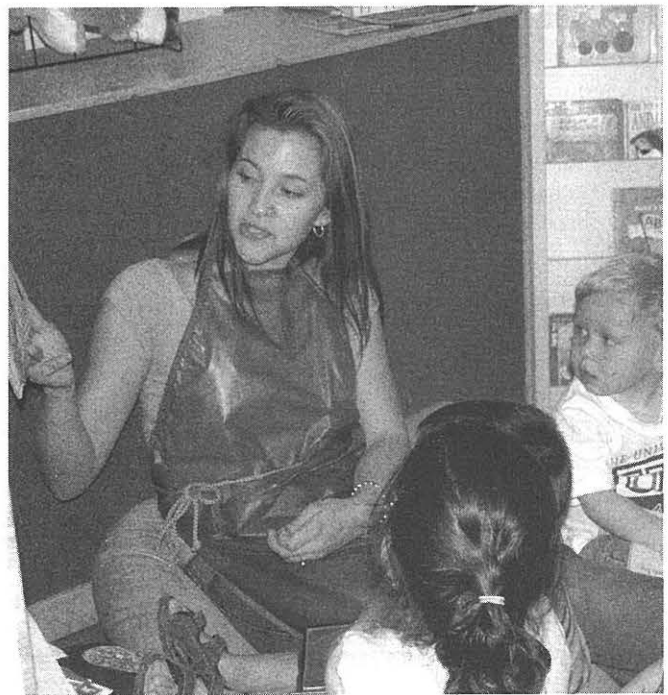
**Subtotal ..... 19-21**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ECE 107*	Human Development and Relations (F-Sp-S) . . . . .	3
ECE 108	Literature/Social Studies for Children (F-Sp-S) . . . . .	3
ECE 110	Communication and Language: Early Literacy for Children (F-Sp-S) . . . . .	3
ECE 112	Music and Art for Children (F-Sp) . . . . .	3
ECE 114	Effective Parenthood (Sp) . . . . .	3
ECE 115*	Supervision and Administration of Early Childhood Programs (Sp) . . . . .	3
ECE 117*	Child Growth and Development (F-Sp-S) . . . . .	3
ECE 124*	Math and Science for Children (F-Sp-S) . . . . .	3
ECE 130	School-Age Child Care and Program Development (Sp) . . . . .	3
ECE 190*	Beginning Level Internship in Early Childhood Education (F-Sp-S) . . . . .	3
ECE 211*	Inclusion of Young Children with Special Needs (F-Sp) . . . . .	3



ECE 226*	Teaching Techniques and Behavior Management (Sp) . . . . .	3
ECE 228	The Young Child: Family, Culture, and Community (F) . . . . .	3
ECE 290*	Advanced Level Internship in Early Childhood Education (F-Sp-S) . . . . .	4
EDU 200*	Introduction to Education (F-Sp-S) . . . . .	3
<b>Subtotal . . . . .</b>		<b>46</b>

### Required Support Course

ECE 125	Nutrition, Health, and Safety for the Young Child (F) . . . . .	3
<b>Subtotal . . . . .</b>		<b>3</b>
<b>Total credits as displayed . . . . .</b>		<b>68-70§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Basic School-Age Child Care Assistant — Certificate for Direct Employment

Understand the basics of school-age child care in before and after school, full-day and recreational settings. Courses focus on child behavior, growth and development. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Paraprofessional (teacher's aide) in a school-age classroom, recreation center, or after-school program.

**Academic Options:** Continue your studies by completing the Advanced School-Age Child Care certificate

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;  
Lead Faculty: 206-5158

**Program Identification Code:** CRTCHILDCR-B

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
ECE 117*	Child Growth and Development (F-Sp-S)	3
ECE 130	School-Age Child Care and Program Development (Sp)	3
ECE 190*	Beginning Level Internship in Early Childhood Education (F-Sp-S)	4
ECE 226*	Teaching Techniques and Behavior Management (Sp)	3
ECE 242	Games and Activities for Children (Sp)	3
EDU 108*	Music, Art, and Drama for School-Aged Child Care (Sp)	3
<b>Total credits as displayed</b>		<b>19</b>

## Advanced School-Age Child Care — Certificate for Direct Employment

Develop advanced skills and gain practical experience caring for school-age children in before and after school, full-day and recreational settings. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Provide child care to school-age children.

**Academic Options:** Continue your studies by taking classes toward a School-Age Child Care AAS degree.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;  
Lead Faculty: 206-5158

**Program Identification Code:** CRTCHILDCR-A

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement .....†  
SPE 102 fulfills this requirement.

Analysis and Critical Thinking Requirement .....3  
See General Education Section, page 56

**Subtotal** .....3

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
ECE 117*	Child Growth and Development (F-Sp-S)	3
ECE 130	School-Age Child Care and Program Development (Sp)	3
ECE 190*	Beginning Level Internship in Early Childhood Education (F-Sp-S)	4
ECE 211	Inclusion of Young Children with Special Needs (F-Sp)	3
ECE 226*	Teaching Techniques and Behavior Management (Sp)	3
ECE 242	Games and Activities for Children (Sp)	3
ECE 290*	Advanced Level Internship in Early Childhood Education (F-Sp-S)	3
EDU 108*	Music, Art, and Drama for School-Aged Child Care (Sp)	3
EDU 109*	Language Arts, Science, and Math for School-Age Child Care (F)	3
<b>Subtotal</b>		<b>27</b>

### Required Support Course

SPE 102 Introduction to Speech Communication (F-Sp-S) ... 3

**Subtotal** .....3

**Total credits as displayed** .....33

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.



## School-Age Child Care — Associate of Applied Science Degree for Direct Employment

Learn to design, supervise and administer programs for school-age children. Understand how children communicate, grow and learn; gain practical teaching techniques; and participate in co-op work experience. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Obtain employment as a paraprofessional (teacher's aide) working with school age children; work in an after-school program as a paraprofessional, teacher or director; work in the field of recreation as a group leader or supervisor.

**Academic Options:** While this program is designed for direct employment, many of the courses can transfer to four-year programs.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;

Lead Faculty: 206-5158

**Program Identification Code:** AASCHILDCARE

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education section, page 56, SPE 102 may fulfill part of this requirement - see advisor

Analysis and Critical Thinking Requirement ..... 0 - 3  
See General Education Section page 56. Support courses will fulfill all or part of this requirement

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

**Subtotal ..... 13 - 18**



Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ECE 115*	Supervision and Administration of Early Childhood Programs (Sp) .....	3
ECE 117*	Child Growth and Development (F-Sp-S) .....	3
ECE 130	School-Age Child Care and Program Development (Sp) .....	3
ECE 190*	Beginning Level Internship in Early Childhood Education (F-Sp-S) .....	4
ECE 211	Inclusion of Young Children with Special Needs (F-Sp) .....	3
ECE 226*	Teaching Techniques and Behavior Management (Sp) .....	3
ECE 240*	Assessment of Young Children (F-Sp) .....	3
ECE 242	Games and Activities for Children (Sp) .....	3
ECE 290*	Advanced Level Internship in Early Childhood Education (F-Sp-S) .....	4
EDU 108*	Music, Art, and Drama for School-Age Child Care (Sp) .....	3
EDU 109*	Language Arts, Science, and Math for School-Age Child Care (F) .....	3

**Subtotal ..... 35**

### Required Support Courses

SPE 102	Introduction to Speech Communications (F-Sp-S) ..	3
Science Electives .....		8
Select any AGECE categorical requirement from the biological and physical sciences list		

**Subtotal ..... 11**

**Total credits as displayed ..... 59-64§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Child Development Associate — Certificate for Direct Employment

Understand childhood learning and development through on-site, one-on-one courses taught in early childhood settings. Choose from concentrations in infant/toddler, preschool, school-age, family child care and management. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Work as a child development associate in child care, preschool, school-age and family programs, or prepare to manage and administer child-care.

Locations: Desert Vista Campus

Department/Contact Information: Division Dean: 206-5105;  
Lead Faculty: 206-5162

**Program Identification Code:** CRTCHILDDDEV

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
CDA 103	Curriculum Planning and Schedule Development (F-Sp-S) . . . . .	1
CDA 104	Ensuring a Safe Environment for Children (F-Sp-S) . . . . .	1
CDA 119	Providing a Healthy Environment for Children (F-Sp-S) . . . . .	1
CDA 121	Techniques for Observing Children (F-Sp-S) . . . . .	1
CDA 138	Building Parent and Classroom Connections (F-Sp-S) . . . . .	3
CDA 151	Nutrition (F-Sp-S) . . . . .	1
CDA 170	Ages and Stages of Young Children: Prenatal Through Toddler (F-Sp-S) . . . . .	2
CDA 173	Ages and Stages for Young Children: The Preschool Years (F-Sp-S) . . . . .	1
CDA 271	Professionalism in Child Care (F-Sp-S) . . . . .	1
<b>Subtotal . . . . .</b>		<b>12</b>

### Core Concentrations -

**A grade of C or better is required for graduation.**

Choose one of the following Concentrations: . . . . . 12-19  
(Department faculty advisor or counselor approval is recommended in the selection of the program concentration.)

#### Infant/Toddler Concentration

CDA 114	Collecting, Organizing, and Using Teaching Aids (F) . . . . .	1
CDA 129	Organize Space, Materials and Equipment for Infants/Toddlers (F) . . . . .	1
CDA 141	Fostering Communication and Language (Sp) . . . . .	1
CDA 203	Creative Media (F-Sp-S) . . . . .	1
CDA 224	Learning Theories and Cognitive Development Applications (F) . . . . .	2
CDA 225	Language Development of Infants and Toddlers (Sp) . . . . .	1
CDA 227	Sensorimotor Learning and Physical Development (F) . . . . .	3
CDA 228	Principles of Social Competence of Infants and Toddlers (F) . . . . .	1
CDA 235	Guidance and Discipline of Infants and Toddlers (F) . . . . .	1

#### Preschool Concentration

CDA 102	The Child's Total Learning Environment (Sp) . . . . .	1
CDA 114	Collecting, Organizing, and Using Teaching Aids (F) . . . . .	1
CDA 141	Fostering Communication and Language (Sp) . . . . .	1
CDA 142	Beginning Mathematical Concepts (F) . . . . .	1
CDA 143	Science and Discovery (F) . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities (F) . . . . .	1
CDA 155	Understanding How Children Learn (Sp) . . . . .	1
CDA 161	Principles of Social Competence (Sp) . . . . .	1
CDA 201	Music and Creative Movement (F-Sp-S) . . . . .	1
CDA 202	Dramatic Play (F-Sp-S) . . . . .	1
CDA 203	Creative Media (F-Sp-S) . . . . .	1
CDA 211	Small and Large Muscle Development (F-Sp-S) . . . . .	2
CDA 222	Elements of Children's Culture (Sp) . . . . .	1
CDA 274	Emerging Literacy (Sp) . . . . .	1
CDA 275	Transitions (Sp) . . . . .	1

#### School-Age Concentration

CDA 102	The Child's Total Learning Environment (Sp) . . . . .	1
CDA 112	Guidance Principals for Encouraging Self-Discipline (Sp) . . . . .	1
CDA 114	Collecting, Organizing, and Using Teaching Aids (F) . . . . .	1
CDA 141	Fostering Communication and Language (Sp) . . . . .	1
CDA 143	Science and Discovery (F) . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities (F) . . . . .	1
CDA 155	Understanding How Children Learn (Sp) . . . . .	1
CDA 161	Principles of Social Competence (Sp) . . . . .	1
CDA 201	Music and Creative Movement (F-Sp-S) . . . . .	1
CDA 202	Dramatic Play (F-Sp-S) . . . . .	1
CDA 203	Creative Media (F-Sp-S) . . . . .	1
CDA 211	Small and Large Muscle Development (F-Sp-S) . . . . .	2
CDA 256	Math for School Age Children (F) . . . . .	1
CDA 273	Ages and Stages: The Middle Childhood Years (F-Sp-S) . . . . .	1
CDA 274	Emerging Literacy (Sp) . . . . .	1

#### Family Child Care Concentration

CDA 102	The Child's Total Learning Environment (Sp) . . . . .	1
CDA 112	Guidance Principals for Encouraging Self-Discipline (Sp) . . . . .	1
CDA 114	Collecting, Organizing, and Using Teaching Aids (F) . . . . .	1
CDA 141	Fostering Communication and Language (Sp) . . . . .	1
CDA 142	Beginning Mathematical Concepts (F) . . . . .	1
CDA 143	Science and Discovery (F) . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities (F) . . . . .	1
CDA 155	Understanding How Children Learn (Sp) . . . . .	1
CDA 161	Principles of Social Competence (Sp) . . . . .	1
CDA 201	Music and Creative Movement (F-Sp-S) . . . . .	1
CDA 202	Dramatic Play (F-Sp-S) . . . . .	1
CDA 211	Small and Large Muscle Development (F-Sp-S) . . . . .	2
CDA 235	Guidance and Discipline of Infants and Toddlers (F) . . . . .	1
CDA 257	Record Keeping for the Family Child Care Provider (S) . . . . .	1
CDA 258	Family Child Care as a Small Business (S) . . . . .	1
CDA 259	Balancing Work and Family in a Family Child Care Setting (S) . . . . .	1

*continued next page*

**Management Concentration**

ACC 100	Practical Accounting Procedures (F-Sp-S)	
or ACC 101	Financial Accounting (F-Sp-S)	3
CDA 257	Record Keeping for the Family Child Care Provider (S)	1
CDA 258	Family Child Care as a Small Business (S)	1
CDA 259	Balancing Work and Family in a Family Child Care Setting (S)	1
ECE 115	Supervision and Administration of Early Childhood Programs (S)	3
ECE 130	School-Age Child Care and Program Development (Sp)	3
MGT 124	Small Business Management (F-Sp-S)	3
<b>Total credits as displayed</b>		<b>25-31</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Early Childhood Education — Associate of Arts

Complete the first two years of an ECE elementary education degree and transfer to a four-year degree program. Complete this program in a combination of daytime, evening and weekend classes.

**What can I do with this degree?**

**Career options:** Preschool teacher, paraprofessional, or instructional aide.

**Academic options:** Transfer to a four-year degree program in early childhood education / elementary education.

Locations: Desert Vista Campus.

Department/Contact Information: Division Dean: 206-5098;  
Lead Faculty: 206-5158

**Program Identification Code:** AOAECE

**Required Courses**

Students must meet the Reading Requirement. Complete required General Education, core and support courses.

**Arizona General Education Curriculum Requirements (AGEC- A)**

English Composition	
WRT 101/WRT107, WRT 102 fulfill this requirement	†
Humanities and Fine Arts	†
ART 105, HUM 253, MUS 151 fulfill this requirement	
Biological and Physical Sciences	†
Two of these: BIO 100, BIO 105, BIO 108 fulfill this requirement	
Mathematics	†
MAT 142 or any Math course numbered 151 or higher fulfill this requirement	
Social and Behavioral Sciences	0-3
ANT 102/ ANT112, POS 210 fulfill part of this requirement (you may take an additional credits from this category or from the "Other Requirements" category)	
Other Requirements	0-3
You may take an additional 3 credits from this category or from the "Social and Behavioral Sciences" category.	
<b>Subtotal</b>	<b>3¥</b>

Course Number	Course Title	Credit Hours
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**Required Core Courses -**

**A grade of C or better is required for graduation.**

Note: Complete ECE 117 before other courses

ECE 108	Literature/Social Studies for Children (Sp-S)	3
ECE 110*	Communication and Language: Early Literacy for Children (Sp)	3
ECE 112	Music and Art for Children (F-Sp)	3
ECE 117*	Child Growth and Development (F-Sp-S)	3
ECE 124*	Math and Science for Children (F)	3
ECE 125*	Nutrition, Health, and Safety for the Young Child (F)	3
ECE 200* or EDU 200	Foundations of Early Childhood Education (Sp) Introduction to Education (F-Sp-S)	3
ECE 211*	Inclusion of Children with Special Needs (F-Sp)	3
ECE 226*	Teaching Techniques and Behavior Management (Sp)	3
ECE 228*	The Young Child: Family, Culture, and Community (F)	3
ECE 240*	Assessment of Young Children (F-Sp-S)	3
ECE 290*	Advanced Level Internship in Early Childhood Education (Sp)	
or ECE 291*	Internship for Students with Early Childhood Education Experience (F-Sp)	4

**Subtotal** ..... **37**

**Required Support Courses**

ANT 102	Introduction to Cultural Anthropology and Linguistics (F-Sp)	
or ANT 112	Exploring Non-Western Cultures (F-Sp-S)	3
ART 105	Understanding Art (F-Sp-S)	3
HUM 253	Western Humanities III (F-Sp-S)	3
MAT 142	Topics in College Mathematics (F-Sp-S)	3-4
or	any Math course numbered 151 or higher	
MUS 151	Exploring Music (F-Sp-S)	3
POS 210	National and State Constitutions (F-Sp-S)	3
WRT 101	Writing I (F-Sp-S)	
or WRT 107	Writing I for Non-Native Speaker (F-Sp-S)	3
WRT 102	Writing II (F-Sp-S)	
or WRT 108	Writing II for Non-Native Speakers (F-Sp-S)	3

**Select two courses from the following:**

BIO 100IN	Biology Concepts (F-Sp-S)	
BIO 105IN	Environmental Biology (F-Sp-S)	
BIO 108IN	Plants, People and Society (F-Sp)	8

**Subtotal** ..... **32-33**

**Total credits as displayed** ..... **72-73§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Select 3 additional credits from the Social and Behavioral Sciences or Other Requirements. Courses may not duplicate required courses

† Core or support courses fulfill this requirement.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support or second language courses.

§ This degree may be completed in less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## ECE Endorsement for Teachers Pre-K through K — Post-Degree Certificate for Direct Employment

Prepare for Arizona's pre-K and Kindergarten ECE Endorsement with a field-intensive, standards-based curriculum. Classes emphasize technology, diversity, and the application of current early childhood theory. Complete this program in a combination of daytime, evening and weekend classes.

Students may receive a waiver for the internship (ECE-190) requirement provided two years full time early childhood (pre-K and/or Kindergarten) experience can be documented.

**Program Prerequisites:** Before you can enroll, you must have earned a bachelor's degree from an accredited institution.

Locations: Desert Vista Campus. Classes can be taken at multiple campuses

Department/Contact Information: Division Dean: 206-5098  
Lead Faculty: 206-5158

**Program Identification Code:** CRDECE

### Required Courses

Students must begin the program with the introductory course, ECE 117, and also meet the Reading Requirement.

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
ECE 108	Literature/Social Studies for Children (Sp-S) . . . . .	1
ECE 110*	Communication and Language: Early Literacy for Children (Sp) . . . . .	3
ECE 112	Music and Art for Children (F-Sp) . . . . .	1
ECE 117*	Child Growth and Development (F-Sp-S) . . . . .	3
ECE 124*	Math and Science for Children (F) . . . . .	1
ECE 125*	Nutrition, Health, and Safety for the Young Child (F) . . . . .	3
ECE 190*	Beginning Level Internship in Early Childhood Education (F) . . . . .	4
ECE 200 or EDU 200	Foundations of Early Childhood Education (F) Introduction to Education (F-Sp-S) . . . . .	3
ECE 211*	Inclusion of Young Children with Special Needs (F-Sp) . . . . .	3
ECE 226*	Teaching Techniques and Behavior Management (Sp) . . . . .	3
ECE 228*	The Young Child: Family, Culture, and Community (F) . . . . .	3
ECE 240*	Assessment of Young Children (F-Sp-S) . . . . .	1
ECE 290*	Advanced Level Internship in Early Childhood Education (Sp) . . . . .	4
<b>Total credits as displayed</b> . . . . .		<b>33</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## K-12 Education

Prepare to become an elementary or secondary school teacher.

Students who plan to teach in elementary school should pursue the Elementary Education Associate of Arts degree; those who wish to teach secondary school should pursue an Associate of Arts. All students will need to complete an education degree at a 4-year college or university before becoming a teacher.

Students who have already earned a bachelor's degree in any discipline can immediately start working toward teacher certification and advanced endorsements.

### Elementary Education — Associate of Arts for Transfer

Complete the first two years of an elementary education degree and transfer to a four-year degree program. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of online, daytime, evening and weekend classes.

#### What can I do with this degree?

**Career Options:** Elementary school instructional aide.

**Academic Options:** Transfer to a four-year elementary education degree program. Students interested in secondary education, rehabilitation or special education should pursue the general Associate of Arts degree.

Locations: Classes can be taken at multiple campuses

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6527

**Program Identification Code:** AOAEDUCATION

#### Arizona General Education Requirements (AGEC-A) -

**A grade of C or better is required in all courses for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition . . . . . 6  
WRT 101 and 102 or WRT 107 and 108

Humanities and Fine Arts . . . . . †  
Support courses fulfill this requirement.

Biological and Physical Sciences . . . . . †  
Support courses fulfill this requirement

Mathematics . . . . . †  
MAT 142 fulfills this requirement.

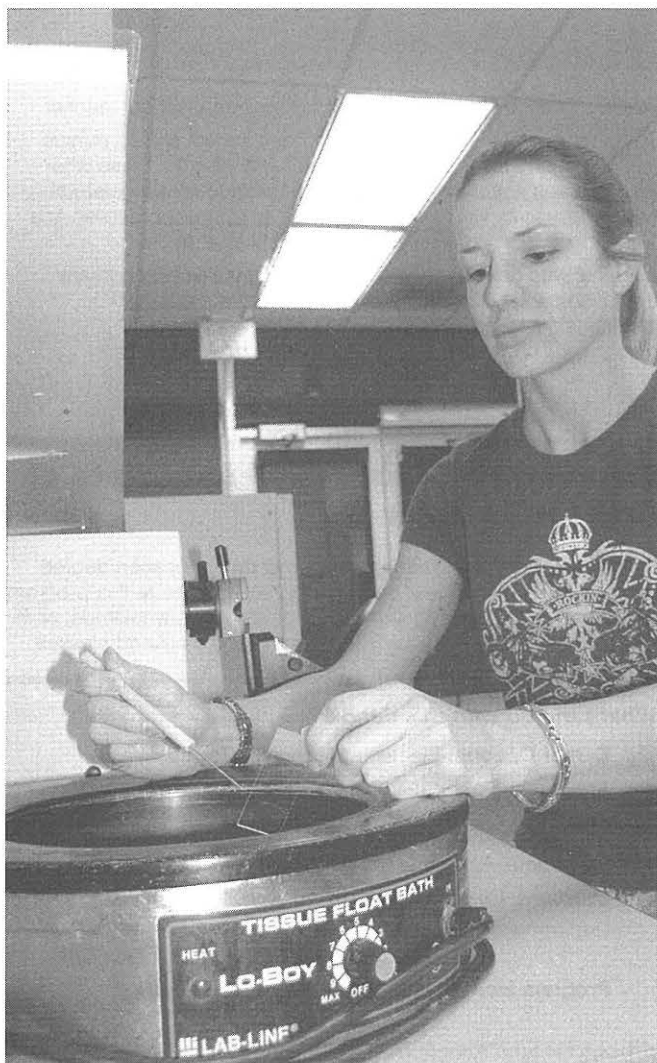
Social and Behavioral Sciences . . . . . †  
Support courses fulfill this requirement

Other Requirements . . . . . †  
Support courses fulfill the I, C, and G requirements.

**Subtotal** . . . . . **6¥**

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Course Number	Course Title	Credit Hours
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**Required Core Courses -****A grade of C or better is required for graduation.**

EDU 200	Introduction to Education (F-Sp-S)	3
EDU 201	Diversity in Education (F-Sp-S)	3
EDU 202	Introduction to the Exceptional Learner (F-Sp)	3
EDU 206	Relationships in Classroom Settings (F-Sp)	3
ETT 101	Introduction to Educational Technology (F-Sp-S)	3

**Subtotal** ..... **15****Required Support Courses**

ART* 105	Understanding Art (F-Sp-S)	3
History:	Complete both courses	6
HIS 101	Introduction to Western Civilization I (F-Sp-S)	
HIS 141	History of the United States I (F-Sp-S)	
Life Science:		
BIO 105IN*	Environmental Biology (F-Sp-S)	4

Earth/Space Science or Physical Science: ..... 4-5

choose one of the following:

AST 101/101LB	
or AST 101IN	Solar System (F-Sp-S)
AST 102/102LB	
or AST 102IN	Stars, Galaxies, Universe (F-Sp-S)
CHM 121/121LB	
or CHM 121IN	Chemistry and Society I (F-Sp)
CHM 130/130LB*	
or CHM 130IN*	Fundamental Chemistry (F-Sp-S)
CHM 151/151LB*	
or CHM 151IN*	General Chemistry I (F-Sp-S)
GEO 101	Physical Geography: Weather & Climate (F-Sp-S)
GEO 102	Physical Geography: Land Forms & Oceans (F-Sp-S)
GLG 101IN	Introductory Geology I: Physical Geology (F-Sp-S)
GLG 102IN	Introductory Geology II: Historical Geology (F-Sp)
PHY 115/115LB†	Physical Science
PHY 121/121LB	
or PHY 121IN	Introductory Physics I (F-Sp-S)

Elementary Science:

SCT 280*	Process of Science for Elementary Educators I (F)	3
SCT 281*	Process of Science for Elementary Educators II (Sp)	3

Mathematics:

MAT 142*	Topics in College Mathematics (F-Sp-S)	9 - 11
	or any Math course numbered 151 or higher	
MAT 146*	Mathematics for Elementary Teachers I (F-Sp-S)	
MAT 147*	Mathematics for Elementary Teachers II (F-Sp-S)	

Civics and Government: ..... 3

POS 210	National and State Constitutions (F-Sp-S)	
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Social and Behavioral Science: ..... 3

GEO 103	Cultural Geography (F-Sp-S)	
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Speech Communication or Language: ..... 3 - 5

Students planning on attending ASU or NAU may choose one of the following speech courses or a language course:

SPE 102	Introduction to Speech Communication (F-Sp-S)	
SPE 110	Public Speaking (F-Sp-S)	

Students planning to attend the UA must complete a 4th semester language course numbered 202, from the following:

CHI 202, FRE 202, GER 202, GRK 202, ITA 202, JPN 202, LAT 202, RUS 202, SPA 202, SPA 203 or SLG 202	
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**Subtotal** ..... **41-46****Total credits as displayed** ..... **62-66§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support or second language courses.

‡ No longer offered, but will fulfill requirement.

## Education — Elementary or Secondary Certification — Post-Degree Certificate for Direct Employment

Prepare for Arizona teacher certification with this post-degree program. Learn from field-intensive, standards-based courses, as well as from a supervised and directed internship. Complete this program by taking classes in a combination of online, evening and weekend classes.

**Program Prerequisites:** Before you can enroll, you must earn a bachelor's degree and meet additional admission requirements. Additional information on admission, course availability, program phases and more is available online.

### What can I do with this certificate?

**Career Options:** Elementary or secondary school teacher.

**Academic Options:** Continue your education with post-graduate work in education or a subject discipline, or pursue additional specialized endorsements offered by Pima.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6527

**Program Identification Code:** CRDTEACHCERT

Course Number	Course Title	Credit Hours
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### Core - A grade of C or better is required for graduation.

#### Basic Core:

EDU 268*	Issues in Education (F-Sp-S)	1
<b>Subtotal</b>		<b>1</b>

#### Foundations:

EDU 270*	Educational Technology and Curriculum Integration (F-Sp-S)	3
EDU 271*	Introduction to Teaching (F-Sp-S)	3
EDU 272*	Educational Psychology (F-Sp-S)	3
EDU 273*	Introduction to Special Education (F-Sp-S)	3
EDU 274*	Structured English Immersion Foundations (F-Sp-S)	3
EDU 275*	Classroom Management (F-Sp-S)	3
<b>Subtotal</b>		<b>18</b>

#### Methods Courses:

EDU 281*	Structured English Immersion Methods (F-Sp)	3
EDU 290*	Internship (F-Sp)	8
<b>Subtotal</b>		<b>11</b>

### Core Options: A grade of C or better is required for graduation.

Choose one of the following options:

#### Teacher Certification Elementary:

EDU 276*	Foundation of Reading Instruction (F)	3
EDU 277*	Phonics Instruction in a Balanced Literacy Setting/Practicum (F-Sp)	3
EDU 278*	Elementary Science Methods and Curriculum Development (F)	3
EDU 279*	Elementary Math Methods and Curriculum Development (Sp)	3
EDU 280*	Social Studies Methods and Curriculum Development (Sp)	3
<b>Subtotal</b>		<b>15</b>

#### Teacher Certification Secondary:

EDU 285*	Secondary Teaching Methods (F-Sp)	3
<b>Subtotal</b>		<b>3</b>
<b>Total credits as displayed</b>		<b>33-45</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Education Endorsement - ESL — Post-Degree Certificate for Direct Employment

Prepare for Arizona's English as a Second Language (ESL) endorsement with field-intensive, standards-based courses. Classes emphasize technology, diversity and current ESL theory. Complete this program by taking a combination of evening, weekend and online classes. A suggested completion schedule (available at: [http://www.pima.edu/program/teacher-ed/esl\\_endorsement\\_schedule.shtml](http://www.pima.edu/program/teacher-ed/esl_endorsement_schedule.shtml)) is available online.

**Program Prerequisites:** Before you can enroll, you must earn a bachelor's degree in education or a subject discipline.

### What can I do with this certificate?

**Career Options:** ESL classroom teacher, resource teacher or other ESL specialist.

**Academic Options:** Continue your education with post-graduate work in education or a subject discipline, or pursue other specialized endorsements offered by Pima.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6527

**Program Identification Code:** CRDENDORSEA

Course Number	Course Title	Credit Hours
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### Required Core Courses -

#### A grade of C or better is required for graduation.

EDU 243*	ESL Practicum (F)	3
EDU 244*	Teaching Reading and Writing to ESL Students (Sp)	3
EDU 245*	Linguistics (Sp)	3
EDU 246	Assessment of ESL Students (F)	3
EDU 247*	Family/Community Involvement in ESL Student Instruction (F)	3
EDU 274*	Structured English Immersion Foundations (F-Sp-S)	3
EDU 281* or EDU 286	Structured English Immersion Methods (F-Sp) Structured English Immersion Methods for Certified Teachers (F-Sp)	3
<b>Total credits as displayed</b>		<b>21</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Education Endorsement - Middle School — Post-Degree Certificate for Direct Employment

Prepare for Arizona's middle school endorsement with field-intensive, standards-based courses. Classes emphasize technology, diversity and current middle-school theory. Complete this program by taking a combination of evening, weekend and online classes. A suggested completion schedule (available at : [www.pima.edu/program/teacher-ed/middle\\_school\\_end\\_schedule.shtml](http://www.pima.edu/program/teacher-ed/middle_school_end_schedule.shtml)) is available online.

**Program Prerequisites:** Before you can enroll, you must earn a bachelor's degree in education or a subject discipline.

### What can I do with this certificate?

**Career Options:** Middle school teacher.

**Academic Options:** Continue your education with post-graduate work in education or a subject discipline, or pursue other specialized endorsements offered by Pima.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6527

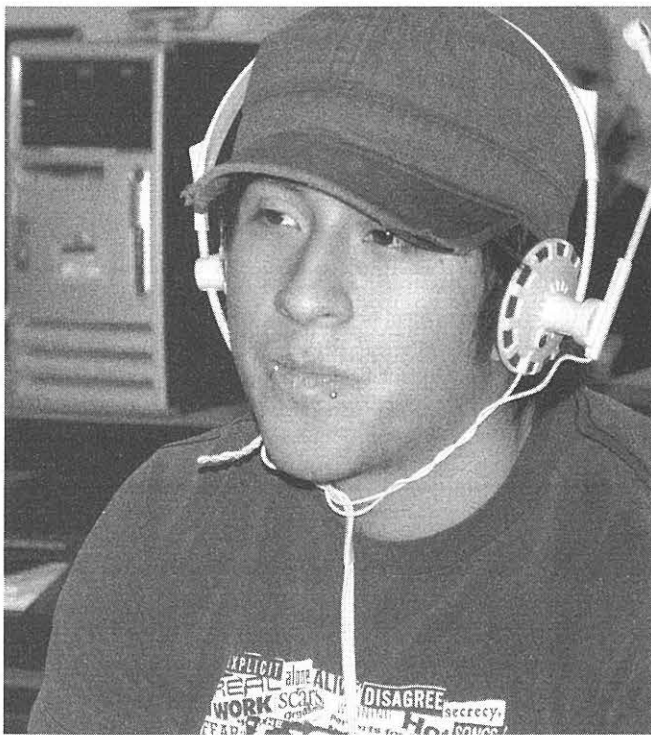
**Program Identification Code:** CRDENDORSEB

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

EDU 240*	Adolescent Development (F) . . . . .	3
EDU 241*	Middle School Curriculum and Instruction (F) . . . . .	3
EDU 242*	Middle Grade Practicum (Sp) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>9</b>



## Education Endorsement - K-12 Reading — Post-Degree Certificate for Direct Employment

Prepare for Arizona K-12 reading endorsement with field-intensive, standards-based courses. Classes emphasize technology, diversity and current reading theory. Complete this program by taking a combination of evening, weekend and online classes. A suggested completion schedule (available at : [http://www.pima.edu/program/teacher-ed/k12\\_reading\\_end\\_schedule.shtml](http://www.pima.edu/program/teacher-ed/k12_reading_end_schedule.shtml)) is available online.

**Program Prerequisites:** Before you can enroll, you must earn a bachelor's degree in education or a subject discipline.

### What can I do with this certificate?

**Career Options:** Reading specialist, reading consultant or remedial reading teacher.

**Academic Options:** Continue your education with post-graduate work in education or a subject discipline, or pursue other specialized endorsements offered by Pima.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6527

**Program Identification Code:** CRDENDORSEB

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

EDU 252*	Reading Diagnosis, Decoding, Remediation and Practicum (F) . . . . .	3
EDU 276	Foundations of Reading Instruction (F) . . . . .	3

#### Electives:

Select 9 credits from the following list:

EDU 254*	Literacy Development in the Primary Grades/Practicum (Sp) . . . . .	3
EDU 255*	Content Area Reading Middle and Secondary Schools/Practicum (Sp) . . . . .	3
EDU 256*	Literacy Development in the Middle School/Practicum (Sp) . . . . .	3
EDU 257*	Special Topics: Children's Literature and Literacy/Practicum (Sp) . . . . .	3
EDU 269*	Balanced Approach to Literacy/Practicum (n/o) . . . . .	3
EDU 277*	Phonics Instruction in a Balanced Literacy Setting/Practicum (F) . . . . .	3

**Total credits as displayed . . . . . 15**

## Special Education and Elementary or Secondary Education Dual Certification — Post-Degree Certificate for Direct Employment

Prepare for Arizona Special Education and Elementary/Secondary Education Certification with field-intensive, standards-based courses. Classes emphasize technology, diversity and current teaching theory. Complete this program by taking a combination of evening, weekend and online classes. A suggested completion schedule is available online.

**Program Prerequisites:** Before you can enroll, you must earn a bachelor's degree in education or a subject discipline.

### What can I do with this certificate?

Earn a Dual Certificate to work as a Special Education Teacher and/or Elementary/Secondary Education Teacher.

**Career options:** Special Education Teacher; Secondary Education Teacher

**Academic options:** Continue your education with post-graduate work in education or a subject discipline, or pursue other specialized endorsements offered by Pima.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578,  
Lead Faculty: 206-6527

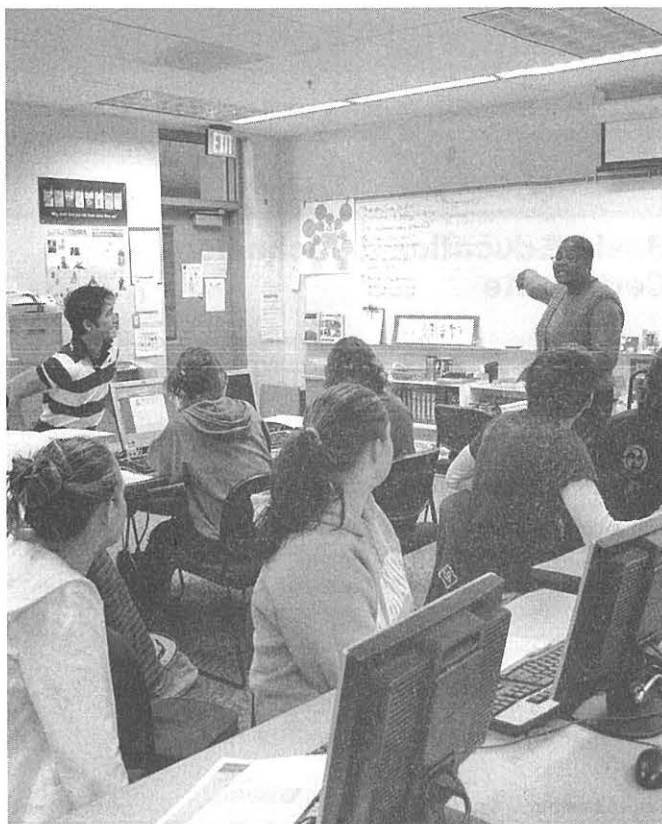
**Program Identification Code:** CRDEDS

Course Number	Course Title	Credit Hours
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#### Required Courses -

#### A grade of C or better is required for graduation

EDS 250	Issues in Special Education (S)	1
EDS 251	Legal Issues in Special Education (S)	1
EDS 252	Understanding Individuals with Disabilities Education Act (S)	1
EDS 253	Development and Implementation of IEPs (S)	1
EDS 254*	Classroom Management for Special Education (F)	2
EDS 255	Assistive Technology for Special Education Teachers (Sp)	3
EDS 256*	Survey of Special Education (F)	3
EDS 257*	Diagnosis Assessment of Students with Mild-Moderate Disabilities (S)	3
EDS 258	Foundations of Instruction - Designated Disability (S)	1
EDS 259* or EDS 261*	Teaching Methods Cross-Categorical Learning Disabilities (F)	3
EDS 260*	Developing Reading, Instruction, Assessment, and Remediation (F)	3
EDS 262	Home, School, and Community Relations (F)	1
EDU 272	Educational Psychology (F-Sp-S)	3
EDU 274*	Structured English Immersion Foundations (F-Sp-S)	3
EDU 281*	Structured English Immersion Methods (F-Sp)	3
EDU 290**	Internship I** (F--Sp)	9
<b>Subtotal</b>		<b>41</b>



### Core Options: A grade of C or better is required for graduation.

Choose one of the following options:

#### Special Education and Elementary Education Dual Certification:

EDU 278*	Elementary Science Methods and Curriculum Development (F)	3
EDU 279*	Elementary Math Methods and Curriculum Development (Sp)	3
<b>Subtotal</b>		<b>6</b>

#### Special Education and Secondary Education Dual Certification:

EDU 255*	Content Area Reading Middle and Secondary Schools/Practicum (Sp)	3
EDU 285*	Secondary Teaching Methods** (F-Sp)	3
<b>Subtotal</b>		<b>6</b>
<b>Total credits as displayed</b>		<b>47</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Certain Post-Degree certificate students are required to take EDU 290A,B,C and D instead of EDU 290.

#### Cost and Curriculum Note:

The fees for EDS 254, 255, 256, 257, 258, 259, 261, 262 are \$20.00 per credit hour in addition to present EDU fees.



# Educational Technology

Learn to use technology effectively in the classroom and meet continuing education requirements for teachers. Courses support the goals of the International Society for Technology in Education (ISTE) and the National Educational Technology Standards (NETS).

## Basic Educational Technology — Certificate

Master the basics of email, web browsing and Microsoft Office applications with this introduction to using computers in the classroom. Complete this program by taking classes in a combination of evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Meet professional development requirements for state re-certification.

**Academic Options:** Continue your studies by pursuing the Advanced Educational Technology certificate.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6471

**Program Identification Code:** CRTINTEDUTEC

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
ETT 101	Introduction to Educational Technology (F-Sp) . . . . .	3
ETT 102	Introduction to Computer Applications in Education (n/o) . . . . .	3
or ETT 103	Introduction to the Internet in Education (Sp) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>6</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Advanced Educational Technology Certificate

Learn how to integrate technology into the curriculum and gain advanced multimedia, computer learning and computer assessment skills. Complete this program by taking a combination of evening and weekend or online classes.

### What can I do with this certificate?

**Career Options:** Meet professional development requirements for state re-certification.

**Academic Options:** Pursue additional professional development opportunities in education offered by Pima.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6471

**Program Identification Code:** CRTAEDUCTECH

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
ETT 104	Teaching and Learning with Computer Applications (n/o) . . . . .	3
ETT 105	Teaching and Learning with the Internet (n/o) . . . . .	3
ETT 106	Teaching and Learning with Multimedia (n/o) . . . . .	4
ETT 107	Educational Technology Topics and Issues (n/o) . . . . .	2-4
ETT 108	Educational Technology and Assessment (n/o) . . . . .	3
ETT 109	Curriculum Integration with Technology (n/o) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>18-20</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

# Emergency Medical Technology

## Basic Emergency Medical Technology — Certificate for Direct Employment

Learn pre-hospital emergency medical care, including physical assessment, medical techniques and ambulance operations. This program is approved by the Arizona Department of Health Services, Bureau of Emergency Medical Services towards certification as an EMT-B in the State of Arizona. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of daytime, evening and weekend classes.

This certificate as well as additional advanced emergency medical technology certificates and programs are also offered through Workforce programs (see <http://www.pima.edu/business/training-dev/>).

**Before enrolling in this program** you must meet certain admission requirements:

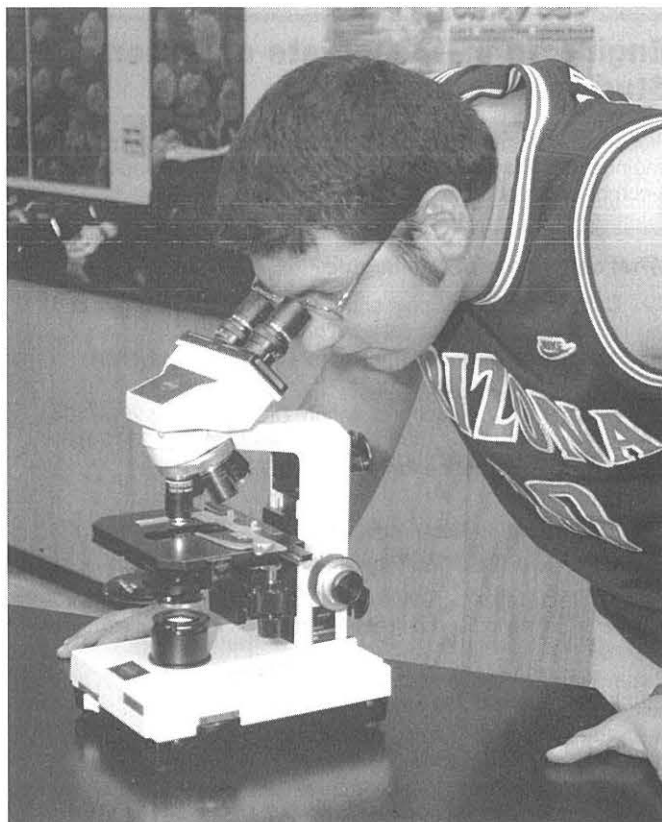
- Be 18 years old when class starts.
- Have cardio-pulmonary resuscitation (CPR) certification at the Healthcare Provider level with at least 1 year left in the certification period.
- Have the ability to lift 125 pounds alone and 250 pounds with a partner.
- Must provide proof of personal medical insurance. Student health insurance is available through Pima.
- Score at least 80 on the College Reading Assessment test.
- Meet with an East Campus advisor to complete a pre-enrollment worksheet.

Provide immunization records for:

- MMR Measles, Mumps, Rubella
- TD Tetanus, Diphtheria (within the last seven years)
- TB Tuberculosis screening indicating negative activity (given no more than six months prior to the beginning of the program)
- Hepatitis B vaccination series (HBV is encouraged but is not required)

An EMT Program Application form is available online as a MS Word Document (available at [www.pima.edu/program/emt/documents/EMT\\_Letter\\_071505.doc](http://www.pima.edu/program/emt/documents/EMT_Letter_071505.doc))

Certification testing requires an additional fee to the National Registry of Emergency Medical Technicians (NREMT). Students with felony and some misdemeanor convictions may not be eligible for certification—contact the Arizona Department of Health Services for additional information about eligibility.



### What can I do with this certificate?

**Career Options:** Take required Arizona and National Registry of Emergency Medical Technicians exams that qualify you to work as an emergency medical technician.

**Academic Options:** Once you receive EMT-B certification and work as an emergency medical technician, you can take classes to improve your skills with advanced certificates and degrees.

Locations: East Campus, Community Campus

Department/Contact Information: Division Dean: 206-7694  
or 206-6350;  
EMT Lab: 206-7839

**Program Identification Code:** CRTEMEDTEC-B

Course Number	Course Title	Credit Hours
<b>Required Core Course -</b>		
<b>A grade of C or better is required for graduation.</b>		
EMT 100	Basic Emergency Medical Technology (F-Sp-S)	9
<b>Total credits as displayed</b>		<b>9</b>

# Engineering

## Engineering—Associate of General Studies Degree

Prepare to transfer to a university to complete a bachelor's degree in engineering. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Some entry-level technical positions or advance in your current position

**Academic Options:** Transfer to a college or university.

Locations: West Campus

Department/Contact Information: Division Dean: 206-7134;

Lead Faculty: 206-7143

**Program Identification Code:** AGSGENRSTUDY

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement .....	†
WRT 101 and WRT 102 satisfy this requirement	
Analysis and Critical Thinking Requirement .....	†
Support courses fulfill this requirement	
Humanities and Social Science Requirement .....	†
Support courses fulfill this requirement	
Computer and Information Literacy Requirement .....	†
Satisfied by core and support courses.	

**Subtotal..... 0**

Course Number	Course Title	Credit Hours
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### Engineering Core -

**A grade of C or better is required for graduation.**

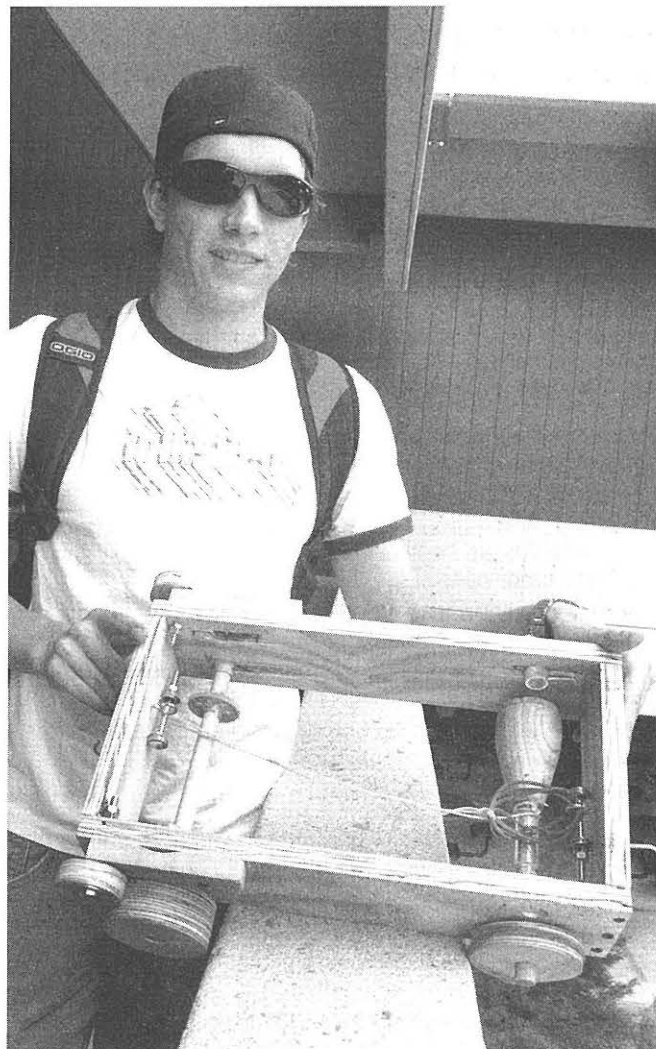
CHM 151/151LB or 151IN*	General Chemistry I (F-Sp-S) .....	5
ENG 102IN*	Problem-Solving and Engineering Design (F-Sp) .	3
MAT 220*	Calculus I (F-Sp-S) .....	5
MAT 231*	Calculus II (F-Sp-S) .....	4
MAT 241*	Calculus III (F-Sp-S) .....	4
MAT 262*	Differential Equations (F-Sp-S) .....	3
<b>Subtotal.....</b>		<b>24</b>

### Communication

WRT 101	Writing I (F-Sp-S) .....	3
WRT 102	Writing II (F-Sp-S) .....	3
<b>Subtotal.....</b>		<b>6</b>

### Math/Science

PHY 210/210LB or 210IN	Introductory Mechanics (F-Sp) .....	5
PHY 216/216LB* or 216IN	Introductory Electricity and Magnetism (F-Sp) . . .	5
<b>Subtotal.....</b>		<b>10</b>



### Humanities

Complete one course from the following. Fulfills the general education Intensive Writing and Critical Inquiry (I) and the Global Awareness (G) requirements.

ANT 112; ART 130, 131; HIS 101, 102, 122, 160, 161; HUM 251, 252, 253; LIT 261, 266, 267

**Subtotal..... 3**

### Social and Behavioral Science

Complete one course from the following. Fulfills the general education Cultural Diversity (C) requirement.

ANT 112, 127, 202, 205, 206; ARC 205; HIS 105, 122, 124, 127, 141, 142, 147, 148, 150, 160, 161, 180, 253, 254; HUM 260; POS 201, 204, 231; PSY 215, 216; REL 200; SOC 101, 103, 120, 201, 204, 215

**Subtotal..... 3**

**Engineering Major Option**

Complete all the courses listed with your major unless there are more than 18 credits listed. If there are more than 18 credits of courses listed, see your Engineering advisor for the selection of courses.

**Aerospace Engineering**

CHM 152/152LB/IN, ENG 210, 220, 230, 232, 260

**Agricultural & Biosystems**

CHM 152/152LB/IN; ENG 170IN or 275IN, 210, 220, 230, 232

**Chemical Engineering**

CHM152/152LB/IN, 235/235LB, 236/236LB, ENG 170IN

**Civil Engineering**

CHM 152/152LB/IN; ENG 120IN, 130IN, 210, 218, 230, 232

**Computer Engineering**

ENG 274IN, 275IN, 282IN; MAT 227; PHY 221/221LB

**Electrical Engineering**

ENG 274IN, 275IN, 282IN; PHY 221/221LB

**Engineering Math**

CHM 152/152LB/IN; ENG 170IN, 210, 220, 232, 250, 260; PHY 221/221LB

**Engineering Physics**

CHM 152/152LB or 152IN; ENG 170IN or 275IN, 210, 230, 260; PHY 221/221LB

**Geological Engineering**

CHM 152/152LB or 152IN; ENG 170IN or 275IN, 210, 230; GLG 101IN; PHY 221/221LB

**Environmental Hydrology & Water Resources**

BIO 105IN; CHM 152/152LB or 152IN; ENG 170IN; GLG 101IN; MAT 252; PHY 221/221LB

**Industrial Engineering**

CHM 152/152LB or 152IN; ENG 250, 275IN

**Materials Science & Engineering**

ENG 170IN or 275IN

**Mechanical Engineering**

CHM 152/152LB/IN; ENG 120IN, 210, 220, 230, 232, 260

**Mining Engineering**

CHM 152/152LB/IN; ENG 130IN, 170IN, 210, 218, 230, 260; GLG 101IN

**Optical Engineering**

ENG 274IN or 275IN, 282IN

**Systems Engineering**

CHM 152/152LB/IN; ENG 170IN, 250, 260

**Subtotal** ..... **3-18**

**Electives**

For some majors, it is necessary to complete additional transferable electives in order to complete the minimum of 60 credits for this degree. If you wish to complete the AGEC-S and the Associate of Science degree, complete an Art list course and another Social and Behavioral Science course from the AGEC list. See an Engineering advisor for the selection of these courses.

**Subtotal** ..... **0-15**

**Total credits as displayed** ..... **60-64**

† Core or support course(s) fulfills this requirement.

\* This course has a prerequisite, corequisite, or recommendation. See course description section.

## English as a Second Language

### English Immersion — Certificate for Direct Employment

Improve your English language skills through an English immersion experience. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

**Before you can enroll**, you must earn a score of 300 on the TOEFL.

#### What can I do with this certificate?

**Career Options:** Seek employment or job advancement with enhanced English skills.

**Academic Options:** This certificate has bi-national recognition and may be accepted in transfer by international or U.S. universities towards bachelor degree or licenciatura programs. Contact the receiving institution.

Locations: All campuses

Department/Contact Information: Division Dean: 206-7661;  
Lead Faculty: 206-7638

**Program Identification Code:** CRTESI

Course Number	Course Title	Credit Hours
<b>Required Core Course -</b>		
<b>A grade of C or better is required for graduation.</b>		
ESL 103*	Total English Experience for International Students (S) .....	1 -12
<b>Communication Electives:</b>		
OAP 151*	Business English (F-Sp) .....	0 -10
or WRT 106*	Writing Fundamentals for Non-Native Speakers of English (F-Sp)	
or WRT 154*	Career Communications (F-Sp)	
WRT 107*	Writing I for Non-Native Speakers of English (F-Sp-S)	
WRT 108*	Writing II for Non-native Speakers of English (F-Sp-S)	
General Electives: Select courses at the 100 level or above		
<b>Total certificate requirements</b> .....		<b>6-12</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



# Fire Science

## Fire Science — Certificate for Direct Employment

Gain firefighting and EMT-Basic skills. This program meets Arizona certification requirements for EMT-Basic as well as Firefighter I and II. Complete this program by taking courses in a combination of day, evening and weekend classes.

**Before you can enroll**, you must complete EMT 100, FSC 153 and FSC 160.

### What can I do with this certificate?

**Career Options:** Students will be eligible to take the State of Arizona Certification Test to become a certified firefighter as well as the National Registry Exam to become an Emergency Medical Technician (EMT-Basic).

**Academic Options:** Continue your studies by taking classes toward an Associate of Applied Science in Fire Science.

Locations: Community Campus

Department/Contact Information: Division Dean/Lead Faculty:  
206-6350

**Program Identification Code:** CRTFIRESICIEN

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
EMT 100	Basic Emergency Medical Technology (F-Sp-S) . . .	9
FSC 130*	Strength and Fitness for the Fire Service (F-Sp) . .	2.5
FSC 149	Fire Operations I (F-Sp) . . . . .	4
FSC 150*	Fire Operations II (F-Sp) . . . . .	4
FSC 151	Introduction to Fire Science (F-Sp) . . . . .	3
FSC 153	Hazardous Materials (F-Sp) . . . . .	1.5
FSC 160	Wildland Firefighting (F-Sp) . . . . .	3
FSC 167	Rescue Practices for the Fire Service (F-Sp) . . . .	2.5
FSC 173	Records and Reports (F-Sp) . . . . .	0.25
<b>Total credits as displayed. . . . .</b>		<b>29.75</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Fire Science — Associate of Applied Science Degree for Direct Employment

Learn firefighting skills, prepare for the day-to-day demands of the profession and learn to cope with challenges in the field. This degree prepares students to move toward managerial and command positions. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

**Before you can enroll**, you must meet certain requirements (available at: [www.pima.edu/program/firescience/fire\\_science\\_program\\_enrollment\\_prerequisites.shtml](http://www.pima.edu/program/firescience/fire_science_program_enrollment_prerequisites.shtml)).

### What can I do with this degree?

**Career Options:** Seek employment or increase promotional opportunities in the fire service.

**Academic Options:** Transfer to ASU-East's Bachelor of Applied Science degree program offered in Tucson.

Locations: Community Campus

Department/Contact Information: Division Dean/Lead Faculty:  
206-6350

**Program Identification Code:** AASFIRESICIEN

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . †  
WRT 101 and 102 fulfill this requirement.

Analysis and Critical Thinking Requirement . . . . . 6  
See General Education Section, page 56

Humanities and Social Science Requirement . . . . . 3  
STU 230 fulfills 3 credits of this requirement. Select 3 more credits from Humanities and Fine Arts or Social Sciences, see General Education Section, page 56

Computer and Information Literacy Requirement . . . . . †  
FSC 189 fulfills this requirement.

**Subtotal . . . . . 9**

Course Number	Course Title	Credit Hours
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Completion of a firefighting academy program or program prerequisites (see narrative above). . . . . 21-23

### Required Core Courses -

**A grade of C or better is required for graduation.**

EMT	100	Basic Emergency Medical Technology (F-Sp-S) . . . . .	9
FSC	130	Strength and Fitness for the Fire Service (F-Sp) . . . . .	2.5
FSC	149	Fire Operations I (F-Sp) . . . . .	4
FSC	150	Fire Operations II (F-Sp) . . . . .	4
FSC	151	Introduction to Fire Science (F-Sp) . . . . .	3
FSC	152	Fundamentals of Fire Prevention (F-Sp) . . . . .	3
FSC	153	Hazardous Materials (F-Sp) . . . . .	1.5
FSC	160	Wildland Firefighting (F-Sp) . . . . .	3
FSC	162*	Hydraulics and Fire Suppression (F-Sp) . . . . .	3
FSC	163*	Fire Apparatus and Equipment (F-Sp) . . . . .	3
FSC	165	Building Construction for Fire Protection (F) . . . . .	3
FSC	166*	Fire Suppression, Strategy and Tactics (F) . . . . .	3
FSC	167	Rescue Practices for the Fire Service (F-Sp) . . . . .	2.5
FSC	173	Records and Reports (F-Sp) . . . . .	0.25
FSC	175	Introduction to Fire Investigation: Origin and Recognition of Arson (F-Sp) . . . . .	3
FSC	189	Current Issues in Fire Science (F-Sp) . . . . .	2
<b>Subtotal . . . . .</b>			<b>49.75</b>

### Required Support Courses

STU	230	Dynamics of Leadership (F-Sp) . . . . .	3
WRT	101*	Writing I (F-Sp-S) . . . . .	3
WRT	102*	Writing II (F-Sp-S) . . . . .	3
<b>Subtotal . . . . .</b>			<b>9</b>
<b>Total credits . . . . .</b>			<b>67.75</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



# Fitness and Sport Sciences

Learn to coach athletes, teach physical education or train individuals in personal fitness.

## Fitness and Sport Sciences - Coaching Certificate for Direct Employment

Learn how to effectively coach teams in several sports. Complete this program by taking a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Seek certification from the Arizona Department of Education, the National Federation of Interscholastic Coaches Association or the American Sport Education Program. Coach a high school-level sports team.

**Academic Options:** Transfer to a university degree program in physical education.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-6685

**Program Identification Code:** CRTCOACHING

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

EDU 240	Adolescent Development (F)	3
FSS 238*	Introduction to Sports Injury Management (F-Sp)	2
FSS 250	Sport First Aid (S)	
or HED 140	First Aid and Cardiopulmonary Resuscitation (F-Sp-S)	1-3
FSS 271*	Sport Psychology (Sp)	3
FSS 272	Coaching Techniques and Practices (F-S)	
or FSS 285*	Principles of Athletic Coaching (Sp)	3
FSS 273*	Physiology Course (F-Sp)**	3

**Total credits as displayed** ..... 16-18

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Select one of the following: FSS 234, FSS 273, BIO 160IN, BIO 210IN, or BIO 202IN

## Fitness Professional—Certificate for Direct Employment

Learn exercise and fitness theories and the skills to teach people how to safely exercise. The program includes work-related experiences at the Fitness and Conditioning Center and in local fitness clubs and agencies. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Work as a personal trainer in your own business or within a fitness club or agency. Take exams for certification by the American Council of Exercise (ACE), the National Strength and Conditioning Association (NSCA), or the American College of Sports Medicine (ASCM).

**Academic Options:** Pursue a physical education degree program at a university or a degree in Exercise Science (ASU or NAU); or transfer in Exercise and Wellness (ASU-East). Pursue a Coaching Certificate.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-6685

**Program Identification Code:** CRTFITNESS

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

FSS 208*	Professional Activities: Aerobics and Group Fitness (Sp)	2
FSS 218	Professional Activities: Weight Training (F)	2
FSS 234	Fundamentals of Exercise Science (F-Sp)	3
FSS 236*	Communication and Exercise Adherence (F)	1
FSN 154	Nutrition (F-Sp-S)	
or FSS 241*	Nutrition for Exercise and Sport (F)	3
FSS 276*	Personal Trainer: Muscular Strength, Endurance Flexibility (F)	3
FSS 277*	Personal Trainer: Cardiovascular Endurance/Body Composition (Sp)	3
FSS 281*	Personal Trainer Exam Preparation (F-Sp)	1
FSS 299*	Introduction to Co-op: Fitness Professional (F-Sp)	1
FSS 299WK*	Co-op Work: Fitness Professional (F-Sp)	2

**Subtotal** ..... 21

### Required Support/Elective Courses

Select a minimum of 2 courses from the following list:

FSS 238*	Introduction to Sports Injury Management (F-Sp)	2
FSS 260	Business Practices for the Personal Trainer (Sp)	1
FSS 262	Personal Trainer: Special Populations (Sp)	1
FSS 270*	Advanced Principles for Athletic Conditioning (Sp)	1
FSS 271	Sport Psychology (Sp)	3
FSS 273	Sport Physiology (Sp)	3
FSS 280*	Lifestyle and Weight Management Consultant (F)	1

**Subtotal** ..... 2-6

**Total credits as displayed** ..... 23-27

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

## Physical Education — Emphasis for Transfer

Complete lower-division general education requirements while preparing for a 4-year degree in physical education. Complete this program by taking a combination of day, evening and weekend classes.

Students planning to transfer and obtain a Bachelor's degree with a major in Physical Education should take the following courses while completing the Associate of Arts degree. Students should meet with Fitness and Sports Sciences faculty to plan their course of study using the appropriate transfer guide.

### What can I do with this degree?

**Career Options:** While this degree is not intended for direct employment, you might seek employment as a coach or an official.

**Academic Options:** Transfer to a university to pursue a bachelor's degree in physical education. Pursue a Coaching Certificate or a Fitness Professional Certificate.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-6685

**Program Identification Code:** AOALIBRALART

### Complete the following courses:

FSS 234	Fundamentals of Exercise Science (F-Sp) . . . . .	3
or BIO 201IN*	Human Anatomy and Physiology I (F-Sp-S) . . . . .	4
and BIO 202IN*	Human Anatomy and Physiology II (F-Sp-S) . . . . .	4
FSS 243	Teaching Physical Activities (F) . . . . .	3
FSS 279	Motor Development (Sp) . . . . .	2
MAT 151	College Algebra (F-Sp-S) . . . . .	4
PSY 101	Introduction to Psychology (F-Sp-S) . . . . .	4
POS 210	National and State Constitutions (F-Sp-S) . . . . .	3

### Language

UA requires completion of a second language at the second-semester level. ASU requires completion of a language at the fourth-semester level. Complete two semesters of a second language. If you transfer to ASU, two more semesters will be required. Complete two courses from one the following sequences:

CHI 101, 102; FRE 101, 102; GER 101, 102;  
GRK 101, 102; ITA 101, 102; JPN 101, 102;  
RUS 101, 102; SLG 101, 102; SPA 101, 102

Complete the Associate of Arts Degree for Transfer in Liberal Arts:  
Use the AA Degree for Transfer in Liberal Arts display in this catalog as a guide. Specifically:

Complete the Arizona General Education Curriculum (AGEC-A)  
See a Fitness and Sports Sciences faculty advisor to complete a program of study form using the Transfer Guide for ASU, NAU or UA. Students transferring to other institutions should consult the specific requirements of the institution to which they plan to attend.

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Exercise Science or Exercise and Wellness - Emphasis for Transfer

Complete lower-division general education requirements while preparing for a career in exercise science or wellness training. Complete this program by taking a combination of day, evening and weekend classes.

Students planning to transfer and obtain a Bachelor's degree with a major in Exercise Science or Exercise and Wellness should take the following courses while completing the Associate of Arts degree. Students should meet with Fitness and Sports Sciences faculty to plan their course of study using the appropriate transfer guide.

### What can I do with this degree?

**Career Options:** While this degree is not intended for direct employment, you might seek employment as a personal trainer.

**Academic Options:** Transfer to a university in Exercise Science (ASU or NAU); or transfer in Exercise and Wellness (ASU-East).

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-6685

**Program Identification Code:** AOALIBRALART

### Complete the following courses:

BIO 201IN*	Human Anatomy and Physiology I (F-Sp-S)
BIO 202IN*	Human Anatomy and Physiology II (F-Sp-S)
FSS 218	Professional Activities: Weight Training (F)
FSS 238	Introduction to Sports Injury Management (F-Sp)
HED 136	Introduction to Health Sciences (n/o)
MAT 151	College Algebra (F-Sp-S)
PHY 121	Introductory Physics I (F-Sp-S)
PSY 101	Introduction to Psychology (F-Sp-S)

### Language

ASU requires completion of a second language at the fourth-semester level. Complete one of the following sequences:

CHI 101, 102, 201, 202; FRE 101, 102, 201, 202;  
GER 101, 102, 201, 202; GRK 101, 102, 201, 202;  
ITA 101, 102, 201, 202; JPN 101, 102, 201, 202;  
RUS 101, 102, 201, 202; SLG 101, 102, 201, 202;  
SPA 101, 102, 201, 202

Complete the Associate of Arts Degree for Transfer in Liberal Arts:  
Use the AA Degree for Transfer in Liberal Arts display in this catalog as a guide. Specifically:

Complete the Arizona General Education Curriculum (AGEC-A)  
See a Fitness and Sports Sciences faculty advisor to complete a program of study form using the Transfer Guide for ASU or NAU. Students transferring to other institutions should consult the specific requirements of the institution to which they plan to attend.

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



# Forensics and Crime Scene Technology

## Crime Scene Management — Certificate for Direct Employment

Learn how to handle a crime scene with courses in forensics; identification, documentation, and processing of evidence; justice administration and more. Courses meet certification requirements of the International Association for Identification as a Crime Scene Technician/Analyst, Levels I-III. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

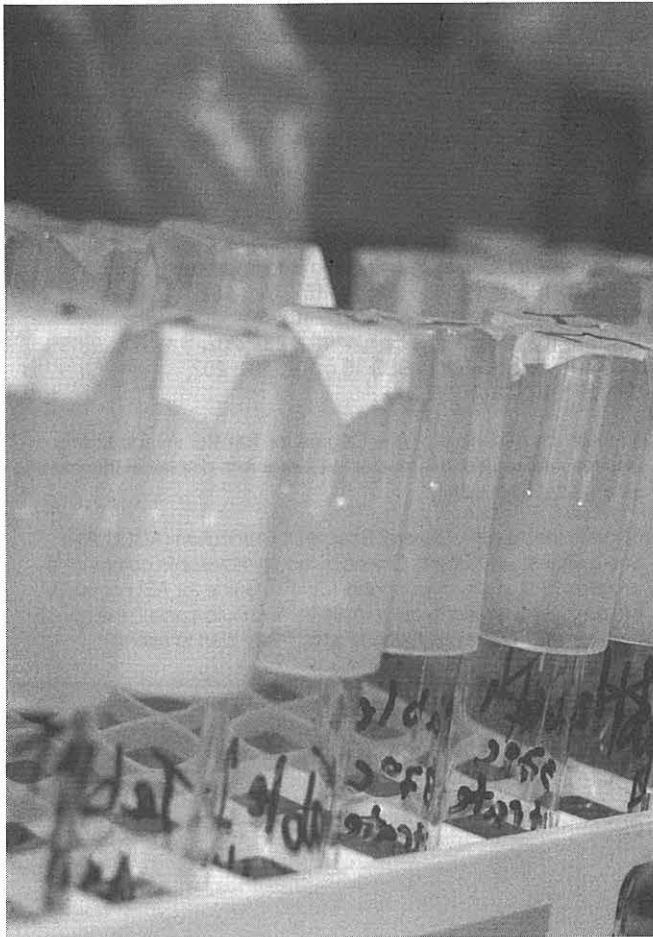
**Career Options:** Become a crime scene technician/analyst.

**Academic Options:** Apply your AJS courses toward an associate degree in Administration of Justice.

Locations: Community Campus

Department/Contact Information: Division Dean/Lead Faculty:  
206-6350

**Program Identification Code:** CRTFORENSICS



Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

CHM 128/128LB/IN*	Forensic Chemistry (F-Sp)	4
CSM 100*	Introduction to Photographic Equipment and Procedures for Crime Scene Investigation (F-Sp)	1
CSM 101*	Criminalistics (F-Sp)	2
CSM 102*	Crime Scene Photography (F-Sp)	1
CSM 103*	Latent Processing (F-Sp)	0.5
CSM 104*	Fingerprint Identification (F-Sp)	3
CSM 105*	Blood Pattern Documentation (F-Sp)	0.5
CSM 106*	Ballistics (F-Sp)	0.5
CSM 107*	Courtroom Testimony and Report Writing (F-Sp)	0.5

**Subtotal** ..... 13

### Required Support Courses -

**A grade of C or better is required for graduation.**

AJS 101	Introduction to Administration of Justice Systems (F-Sp-S)	3
AJS 124 or LEN 105	Ethics and the Administration of Justice (F-Sp) Ethics and Leadership in Law Enforcement (n/o)	3
AJS 201	Rules of Evidence (F-Sp)	3

**Subtotal** ..... 9

**Total credits as displayed** ..... 22

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## General Studies

### General Studies — Associate of General Studies Degree

This degree allows students to uniquely design an associate's degree in collaboration with a faculty member, advisor or counselor. Courses may be chosen from a variety of subject areas. Students should meet with an advisor or counselor before beginning this degree. Engineering students who plan to transfer to a university should follow courses outlined in the engineering concentration. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of daytime, evening and weekend classes.

#### What can I do with this degree?

**Career Options:** Design courses to fit careers of your choice.

**Academic Options:** Continue taking classes toward a transfer degree.

Locations: All campuses

Department/Contact Information:

Division Dean: 206-7046 (Downtown Campus);  
206-6809 (Desert Vista Campus);  
206-7661 (East Campus);  
206-2294 (Northwest Campus);  
206-6996 (West Campus);  
206-6476 (Community Campus)

**Program Identification Code:** AGSGENRSTUDY

#### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . 6  
See General Education Section, page 56

Humanities and Social Science Requirement . . . . . 6  
See General Education Section, page 56

Computer and Information Literacy Requirement . . . . . 1-3  
See General Education Section, page 56

**Subtotal . . . . . 19-21**

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

ELEC Complete courses numbered 100 or better.  
See an advisor to develop an education plan. . . . . 39 - 41

**Subtotal . . . . . 39-41**

**Total credits as displayed . . . . . 60§**

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Geology

Study the earth—its processes, materials, history and effect on humans and life—by taking courses in geology that focus on physical geology, historical geology, geological processes, oceanography and more. Students learn through a combination of lecture, hands-on lab experiences, and field trips.

Geology courses are offered as part of the requirements of the **Associate of Science degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with chemistry faculty to plan their course of study using the appropriate transfer guide.

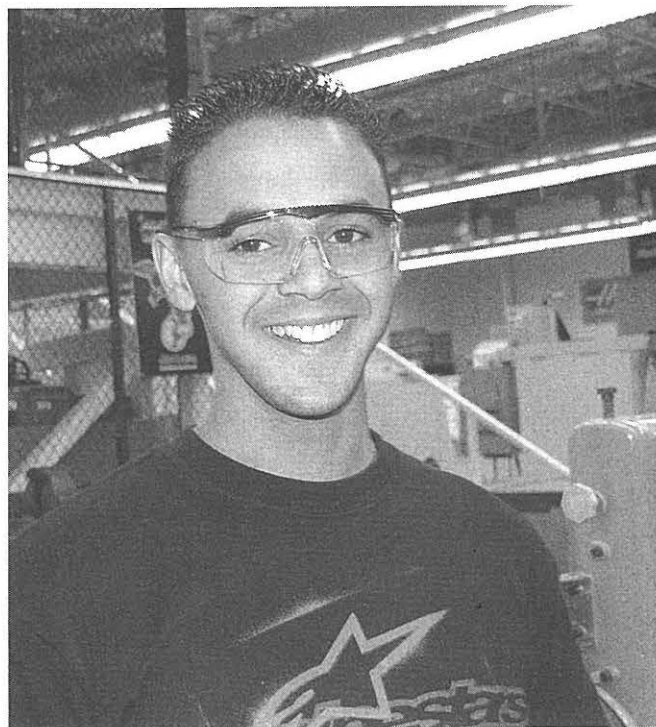
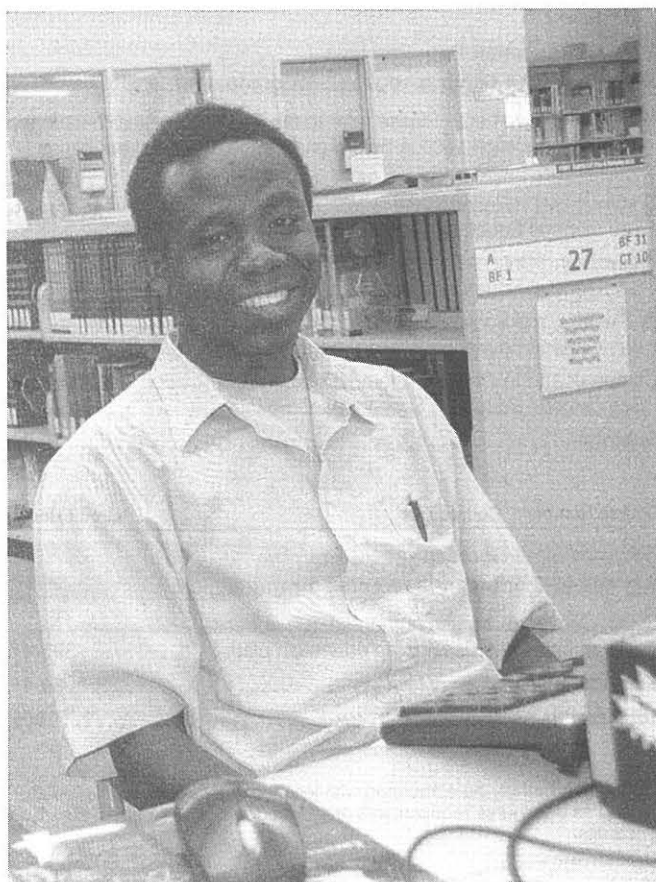
### *What can I do with my studies in geology?*

**Career options:** Work as a technician in laboratories, with geophysical surveying firms, in the petroleum industry, with government, and technical service firms.

**Academic options:** Continue studies towards a Bachelor of Science in geology, geosciences, geological engineering, engineering, or education.

Location: West Campus

Department/Contact Information: Division Dean: 206-6763



## History

Study the origins and development of society by taking courses that focus on the history of regions, countries and peoples from pre-historic times to the present.

History courses are offered as part of the requirements of the **Associate of Arts degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with a history faculty member or advisor to plan their course of study using the appropriate transfer guide.

### *What can I do with my studies in history?*

**Career options:** after completing a bachelor's degree, seek employment in a variety of fields including teaching, law or government

**Academic options:** continue studies toward a bachelor of arts in history or education.

Locations: All Campuses

# Histotechnology

Learn skills and get practical work experience in preparing tissue for testing, examination and diagnosis.

These programs are accredited by the National Accrediting Agency for Clinical Laboratory Sciences (available at: <http://www.pima.edu/program/histotechnology/accreditation.shtml>).

## Histotechnician — Post-Degree Certificate for Direct Employment

Learn techniques and theory of histotechnology for immediate employment and licensure. Gain co-op work experience in both a research and development and a clinical laboratory. This certificate program is designed for individuals who already have a degree. This program is based on requirements by the National Accrediting Agency for Clinical Laboratory Sciences. Complete this program exclusively on weekdays, or in a combination of day and evening classes.

**Before you can enroll**, you must meet certain requirements (available at: [http://www.pima.edu/program/histotechnology/histotechnician\\_pd\\_cert\\_enrollment\\_requirements.shtml](http://www.pima.edu/program/histotechnology/histotechnician_pd_cert_enrollment_requirements.shtml)).

### What can I do with this degree?

**Career Options:** Take the American Society of Clinical Pathologists licensure exams. Assist pathologists and dermatologists in hospitals and private practice, or work in industrial or academic research & development.

**Academic Options:** While this degree is not designed for transfer to a 4-year university, some of the courses are transferable.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763;  
Lead Faculty: 206-6832

**Program Identification Code:** CRDHPT

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
BIO 110	Techniques and Mathematics for the Laboratory (F-Sp) . . . . .	2
HTP 100*	Histotechniques I (Sp) . . . . .	5
HTP 199*	Introduction to Co-op: Histotechnology Research / Development (F-Sp-S) . . . . .	1
HTP 199WK*	Co-op Work: Histotechnology Research / Development (F-Sp-S) . . . . .	4
HTP 200*	Histotechniques II (S) . . . . .	5
HTP 201*	Histotechniques III (Sp) . . . . .	4
HTP 202*	Histotechniques IV (Sp) . . . . .	3
HTP 210*	Histology (F) . . . . .	4
HTP 299*	Introduction to Co-op: Histotechnology Clinical (F-Sp-S) . . . . .	1
HTP 299WK*	Co-op Work: Histotechnology Clinical (F-Sp-S) . . . . .	4
<b>Subtotal . . . . .</b>		<b>33</b>
<b>Total credits as displayed . . . . .</b>		<b>33</b>

## Histotechnician — Associate of Applied Science Degree for Direct Employment

Learn techniques and theory of histotechnology for immediate employment and licensure. Gain co-op work experience in both research & development and a clinical laboratory. This program is based on the requirements of the National Accrediting Agency for Clinical Laboratory Sciences. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

**Before you can enroll**, you must meet certain requirements (available at: [http://www.pima.edu/program/histotechnology/histotechnician\\_aas\\_enrollment\\_requirements.shtml](http://www.pima.edu/program/histotechnology/histotechnician_aas_enrollment_requirements.shtml)).

### What can I do with this degree?

**Career Options:** Take the American Society of Clinical Pathologists licensure exams. Assist pathologists and dermatologists in hospitals and private practice, or work in industrial or academic research and development.

**Academic Options:** While this degree is not designed for transfer to a 4-year university, some of the courses are transferable.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763;  
Lead Faculty: 206-6832

**Program Identification Code:** AASHISTOTECH

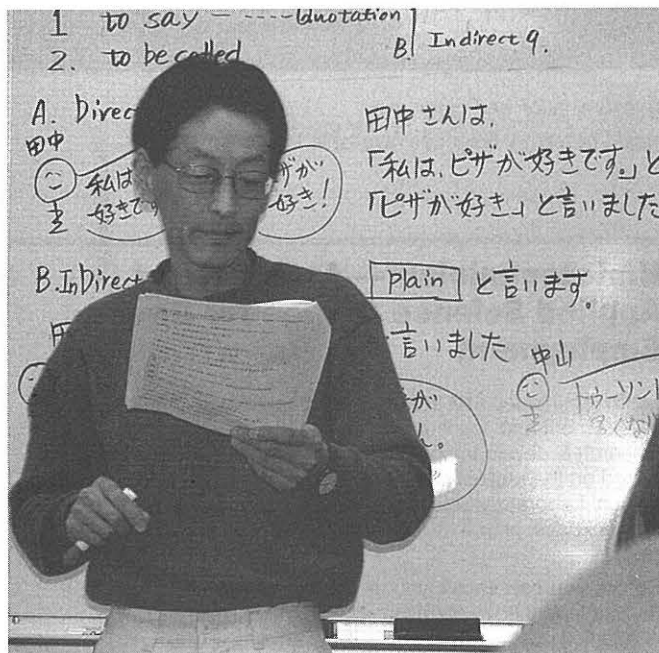
### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education Section, page 56	
Analysis and Critical Thinking Requirement . . . . .	3
Core and Support courses fulfill this requirement	
Humanities and Social Science Requirement . . . . .	3
BIO 250 fulfills part of this requirement. See General Education Section, page 56	
Computer and Information Literacy Requirement . . . . .	1-3
<b>Subtotal . . . . .</b>	<b>13-15</b>

*continued next page*





Course Number	Course Title	Credit Hours
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**Required Core Courses -****A grade of C or better is required for graduation.**

OAP 162	Medical Terms I (F-Sp)	3
BIO 110	Techniques and Mathematics for the Laboratory (F-Sp)	2
HTP 199*	Introduction to Co-op: Histotechnology Research / Development (F-Sp-S)	1
HTP 199WK*	Co-op Work: Histotechnology Research / Development (F-Sp-S)	4
BIO 210*	Histology (F)	4
BIO 250	Biomedical Ethics (F)	3
HTP 100*	Histotechniques I (Sp)	5
HTP 200*	Histotechniques II (S)	5
HTP 201*	Histotechniques III (Sp)	4
HTP 202*	Histotechniques IV (Sp)	3
HTP 299*	Introduction to Co-op: Histotechnology Clinical (F-Sp-S)	1
HTP 299WK*	Co-op Work: Histotechnology Clinical (F-Sp-S)	4
<b>Subtotal</b>		<b>39</b>

**Required Support Course**

BIO 201IN*	Human Anatomy and Physiology I (F-Sp-S)	4
BIO 202IN*	Human Anatomy and Physiology II (F-Sp-S)	4
BIO 205IN*	Microbiology (F-Sp-S)	4
<b>Subtotal</b>		<b>12</b>
<b>Total credits as displayed</b>		<b>64-66</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Honors

### Honors Program — Certificate of Completion

The Honors Program offers academically excellent students a variety of enrichment opportunities to assist them in attaining their full academic potential. Students are admitted to the Honors Program when they complete HON 101 Honors Colloquium with a grade of C or better.

Before enrolling in HON 101, you must: attain a score of 90 or above on both the reading and writing portions of the college assessment tests, or complete at least 12 college credits in courses numbered 100 or above with an accumulated GPA of 3.5 or better.

**Program Identification Code:** CRTHON

**Required Courses:**

To earn this certificate, students must complete a minimum of 15 credits of Honors coursework with an overall 3.5 GPA.

Course Number	Course Title	Credit Hours
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**Required Core Course -****A grade of C or better is required for graduation.**

HON 101	Honors Colloquium (F-Sp)	3
<b>Subtotal</b>		<b>3</b>

**Electives - Select a minimum of 12 credits from the following:**

HON 210	College Honors Advisory Council (F-Sp)	1
HON 244	Honors Field Excursions (Sp)	1-3
HON 296*	Honors Independent Study Project (F-Sp)	1-3
WRT 101HC*	Writing I, (Honors Content) (F-Sp-S)	3
WRT 102HC*	Writing II, (Honors Content) (F-Sp-S)	3

Honors Content Courses in any Prefix  
(See Schedule of Classes for current offerings) \*\* 3-12

Honors Contracts in regular courses  
(Meet with an Honors Coordinator at any campus) \*\*\* 3-12

<b>Subtotal</b>		<b>12</b>
<b>Total credits as displayed</b>		<b>15</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* See Schedule of Classes for current offerings

\*\*\*Meet with an Honors Coordinator at any campus

# Hotel and Restaurant Management

Learn basic principles of hotel and restaurant management.

## Hotel and Restaurant Management — Certificate for Direct Employment

Work in the Resort/Hotel or Restaurant industry while completing an entry level, career-track certificate that provides an introduction to hotel/restaurant management. Complete this program by taking classes exclusively during the day and earn credit for co-op work experience.

### What can I do with this certificate?

**Career Options:** Entry-level employment in hotel or restaurant management

**Academic Options:** Courses can apply to an Associates Degree or to the HRM baccalaureate degree at Northern Arizona University

Locations: Northwest Campus

Department/Contact Information: Division Dean: 206-2264;

Lead Faculty: 206-2299

**Program Identification Code:** CRTHRM

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
HRM 100	Introduction to Hospitality Industry (F-Sp) . . .	3
HRM 104	Hotel Food and Beverage Management (Sp) . . . . .	3
CSA 100	Computer Literacy (F-Sp-S) . . . . .	1
CSA 210	Microsoft Excel Specialist Certification (F-Sp-S) . . . . .	2
HRM 199/199WK*	Introduction to Co-op: Hotel and Restaurant Management (F-Sp)	
or HRM 299/299WK*	Co-op Work: Hotel and Restaurant Management (F-Sp) . . . . .	3
<b>Subtotal</b> . . . . .		<b>12</b>

### Support Courses (Choose 9 or more credits.) -

**A grade of C or better is required.**

HRM 101	Front Office Procedures (F-Sp) . . . . .	3
HRM 110	Food Service Systems Management (F) . . . . .	3
HRM 111*	Commercial Food (Sp) . . . . .	3
HRM 120	Meetings and Convention Management (S) . . . . .	3
HRM 150	Executive Housekeeping (F-Sp) . . . . .	3
HRM 245*	Hospitality Human Resource Management (Sp) . . . . .	3
<b>Subtotal</b> . . . . .		<b>9</b>
<b>Total credits as displayed</b> . . . . .		<b>21</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Hotel and Restaurant Management — Associate of Arts Degree for Transfer

Learn basic principles of hotel and restaurant management while completing lower-division required courses for a bachelor's degree in Hotel and Restaurant Management. Complete this program by taking classes exclusively during the day.

### What can I do with this degree?

**Career Options:** Entry-level employment in hotel or restaurant management

**Academic Options:** Complete a bachelor's degree in Hotel and Restaurant Management in Tucson through a partnership with NAU. Completion of required program courses, including AGECA requirements, allows students to waive 12 upper-division liberal studies courses upon transfer to NAU.

Locations: Northwest Campus

Department/Contact Information: Division Dean: 206-2264;

Lead Faculty: 206-2299

**Program Identification Code:** AOAHSPITALITY

### Arizona General Education Curriculum Requirements (AGECA) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition . . . . . 6  
See General Education Section, page 57

Humanities and Fine Arts . . . . . 6  
See General Education Section, page 57

Biological and Physical Sciences . . . . . 8  
See General Education Section, page 57

Mathematics . . . . . 3  
See General Education Section, page 57

Social and Behavioral Sciences . . . . . 3  
ECN 200 fulfills 3 credits of this requirement.

See General Education Section, page 57 for a non-ECN course.

Other Requirements . . . . . †  
Second language support courses fulfill this requirement.

Special Requirements

The I, C, and G requirements should be fulfilled by courses in the above categories.

**Subtotal** . . . . . **26**

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
HRM 100	Introduction to Hospitality Industry (F-Sp) . . . . .	3
HRM 101	Front Office Procedures (F-Sp) . . . . .	3
HRM 150	Executive Housekeeping I (F-Sp) . . . . .	3
<b>Subtotal</b> . . . . .		<b>9</b>

*continued next page*

**Required Support Courses**

ACC 101	Financial Accounting (F-Sp-S)	3
CSA 101	Computer Fundamentals (F-Sp-S)	3
HRM 110	Food Service Systems Management (F)	3
HRM 111*	Commercial Food (Sp)	3
ECN 200*	Basic Economic Principles (F-Sp-S)	3
Second Language Requirement		8
Completion of two semesters of a language course numbered 101, 102*, 201* or 202*		
Hospitality Elective		3
Complete 3 credits of transferable electives from the Hospitality transfer guide or any transferable course.		
<b>Subtotal</b>		<b>26</b>
<b>Total credits as displayed</b>		<b>61</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

‡ AGEC requires 35 credits. This subtotal shows the AGEC credits not fulfilled by core, support, or second language courses.

## Human Resources

### Human Resources — Certificate for Direct Employment

Learn the principles and practices associated with a career in Human Resources. Complete this program by taking classes exclusively online.

#### What can I do with this certificate?

**Career Options:** Move into basic human relations functions with a current employer. Find employment in human relations tasks.

**Academic Options:** Expand your business knowledge through other business programs.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6578;  
Lead Faculty: 206-6471

**Program identification code:** CRTHUMANRES

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
HRS 101	Introduction to Human Resources Management (F-Sp-S)	3
HRS 102	Human Resource Law (F-Sp-S)	3
HRS 103	Benefits and Compensation (F-Sp-S)	3
HRS 104	Job Requirements, Recruitment, and Personnel Selection (F-Sp)	3
HRS 105	Training and Development (F-Sp)	3
HRS 106	Labor Relations (F-Sp)	3
<b>Total credits as displayed</b>		<b>18</b>

# Interior Design

Understand the basics of color, design, furniture and architecture. Prepare for direct employment or to transfer to a four-year college or university.

## Interior Design — Associate of Applied Science Degree for Direct Employment

Courses cover design, color theory, history of architecture and furniture, interior materials, business procedures, computer aided drafting fundamentals and presentation techniques. Students participate in hands-on studio projects and learn to solve residential and contract design issues. Complete this program with a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level interior designer.

**Academic Options:** Students planning to transfer to a four-year degree program should pursue an Associate of Arts in Interior Design degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7188

**Program Identification Code:** AASDESIGN



### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 3  
IDE 213 fulfills part of this requirement See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
CAD 101 fulfills this requirement.

**Subtotal** ..... 15

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

IDE 100	Introduction to Interior Design (F-Sp-S)	3
IDE 111	Fundamentals of Interior Design (F-Sp)	3
IDE 122	Visual Communications I (Sp)	3
IDE 152	Color and Lighting Theory (Sp)	3
IDE 155	Space Planning I (F-Sp)	3
IDE 160	Fabrics for Interiors (F-Sp)	3
IDE 212	History of Interior Architecture and Furniture from the Egyptian Period to 1900 (F-Sp)	3
IDE 213	History of Interior Architecture and Furniture from 1900 to the Present (Sp)	3
IDE 220	Interior Methods and Materials (F)	3
IDE 222*	Visual Communications II (Sp)	3
IDE 230*	Interior Design Business and Professional Practices (Sp)	3
IDE 255*	Space Planning II (Sp)	3
IDE 256*	Human and Environmental Design (F)	3
IDE 280	Interior Design Portfolio Development (Sp)	1

**Subtotal** ..... 40

### Required Support Courses

CAD 158*	Computer Aided Drafting Fundamentals for Interior Design (F-Sp)	4
CSA 100	Computer Literacy (F-Sp-S)	1

**Subtotal** ..... 5

**Total credits as displayed** ..... 60

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.



## Interior Design Associate of Arts Degree for Transfer

Program includes all of the courses needed to transfer to a four-year degree program in interior design. Complete this program exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** While intended to be a transfer degree, completing this program would qualify you for some entry-level positions in interior design.

**Academic Options:** Transfer to a four-year degree program. Transfer to:

- Northern Arizona University's Interior Design program. This program leads to a Bachelor of Science in Interior Design.
- Other Arizona universities in liberal arts.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7188

**Program Identification Code:** AOADESIGN

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition	6
See General Education Section, page 57	
Humanities and Fine Arts	†
ART 110, ART 130 and IDE 213 fulfill this requirement.	
Biological and Physical Sciences	8
See General Education Section, page 57	
Mathematics	3
See General Education Section, page 57	
Social and Behavioral Sciences	
PSY 101, SOC 101 and ECN 200 fulfill this Requirement	†
Other Requirements	0
Special Requirements	
Support courses fulfill the I, C and G requirements	
<b>Subtotal</b>	<b>17*</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

IDE 100	Introduction to Interior Design (F-Sp-S)	3
IDE 111	Fundamentals of Interior Design (F-Sp)	3
IDE 122	Visual Communications I (Sp)	3
IDE 155	Space Planning I (F-Sp)	3
IDE 160	Fabrics for Interiors (F-Sp)	3
IDE 212	History of Interior Architecture and Furniture Egyptian Period to 1900 (F-Sp)	3
IDE 213	History of Interior Architecture and Furniture from 1900 to the Present (Sp)	3
IDE 222*	Visual Communications II (Sp)	3
IDE 255	Space Planning II (Sp)	3
<b>Subtotal</b>		<b>27</b>

### Required Support Courses

ART 110*	Drawing I (F-Sp-S)	3
ART 130	Art and Culture: Prehistoric Through Gothic (F-Sp-S)	3
CAD 158*	Computer Aided Drafting Fundamentals for Interior Design (F-Sp)	4
ECN 200*	Basic Economic Principles (F-Sp-S)	3
PSY 101	Introduction to Psychology (F-Sp-S)	4
SOC 101	Introduction to Sociology (F-Sp-S)	3
<b>Subtotal</b>		<b>20</b>
<b>Total credits as displayed</b>		<b>64§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Interpreter Training

## Interpreter Training Program — Associate of Applied Arts Degree for Direct Employment

Learn to interpret for the deaf. This program includes lecture, laboratory skills and field experience courses. It teaches the skills needed to take the National Certification Exams. Complete this program by taking classes exclusively on weekdays, or in a combination of day, evening and weekend classes.

Before you can enroll, you must meet special enrollment requirements:

- Complete or be concurrently enrolled in WRT 102, SLG 202, and REA 075
- Demonstrate reading competency at REA 112 level or higher
- Meet with a department faculty member

### What can I do with this degree?

**Career Options:** Become an interpreter for the deaf in a variety of community and educational settings. This degree is also helpful for those pursuing related career fields in assisting the deaf.

**Academic Options:** While this program is not designed for transfer to a four-year university, some of the courses in the program are transferable.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6857;  
Lead Faculty: 206-6652

**Program Identification Code:** AAAINTPTRAIN

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 3-6  
SPE 102 may fulfill 3 credits of this requirement. See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . 6  
See General Education Section, page 56

Humanities and Social Science Requirement . . . . . 3  
ANT 102 fulfills part of this requirement. See General Education Section, page 56

Computer and Information Literacy Requirement . . . . . 1-3  
See General Education Section, page 56

**Subtotal . . . . . 13-18**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

ITP	105*	Beginning Fingerspelling and Numbers (F-Sp) . . . . .	2
ITP	200*	Introduction to the Deaf Community (Sp) . . . . .	4
ITP	203*	Linguistics of American Sign Language (F) . . . . .	3
ITP	205*	Advanced Fingerspelling and Numbers (F-Sp) . . . . .	2
ITP	210*	Introduction to Interpreting (F) . . . . .	4
ITP	215*	Classifiers and ASL Literature (F) . . . . .	4
ITP	220*	Interpreting I (Sp) . . . . .	4
ITP	250*	Interpreting II (F) . . . . .	4
ITP	268*	Etymology (Sp) . . . . .	3
ITP	270*	Beginning Sign to Voice (Sp) . . . . .	4
ITP	280*	Advanced Sign to Voice (F) . . . . .	4
ITP	285*	Educational Interpreting/Transliterating (Sp) . . . . .	4
ITP	289*	Special Topics in Interpreting (Sp) . . . . .	2
ITP	290*	Interpreter Training Field Experience (Sp) . . . . .	2

**Subtotal . . . . . 46**

### Required Support Courses

ANT	102	Introduction to Cultural Anthropology and Linguistics (F-Sp) . . . . .	3
PSY	101	Introduction to Psychology (F-Sp-S) . . . . .	4
SPE	102	Introduction to Speech Communication (F-Sp-S) . . . . .	3

**Subtotal . . . . . 10**

**Total credits as displayed . . . . . 69-74§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a

## Journalism

Learn to report, photograph or edit stories about news and events for the print, broadcast or electronic media.

Journalism courses are offered as part of the requirements of the **Associate of Arts in Liberal Arts degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with journalism faculty to plan their course of study using the appropriate transfer guide.

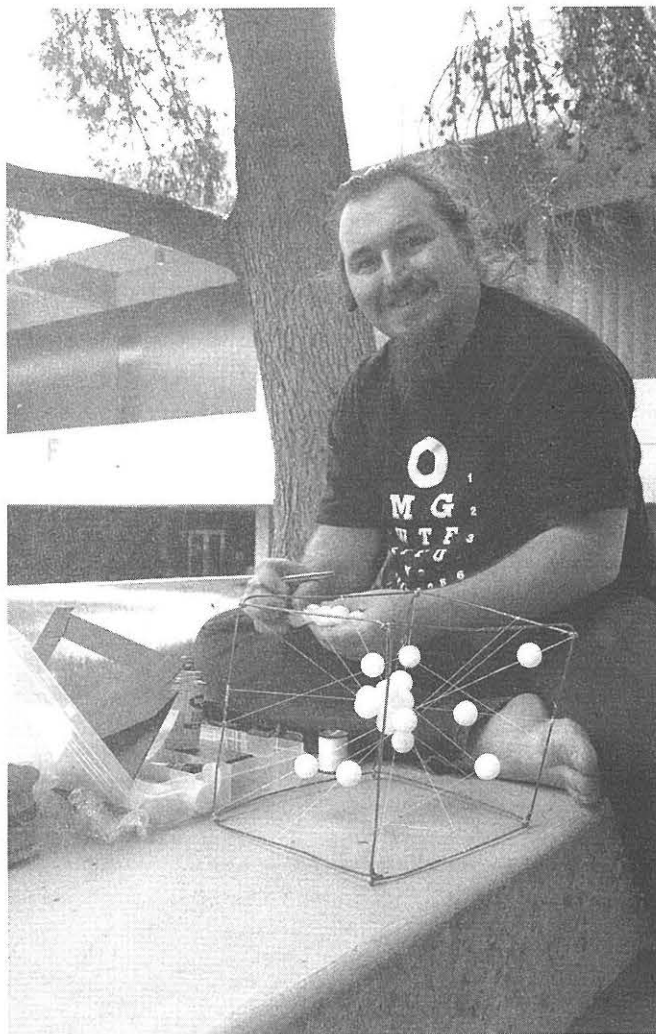
### What can I do with my studies in journalism?

**Academic options:** continue studies towards a bachelor of arts in journalism, English or a humanities discipline.

**Career options:** seek entry-level employment working in newspaper, broadcasting or publishing firms

Location: West Campus

Department/Contact Information: Division Dean: 206-6690



## Leadership

### Leadership — Post-Degree Certificate

Enhance your leadership skills in government, non-profit organizations or the business world. Students must have a minimum of 60 credits of College coursework before enrolling in this certificate program. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Apply your enhanced leadership skills to increase your opportunities for promotion and success at work.

**Academic Options:** While this certificate is not designed for transfer to a 4-year university, some of the courses in the program are transferrable.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7043

**Program Identification Code:** CRDLEADERSHP

### General Education Requirements -

**A grade of C or better is required for graduation.**

Communication Requirement . . . . .	3
See General Education Section, page 56	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education Section, page 56	
<b>Subtotal . . . . .</b>	<b>6</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

STU/MGT 230	Dynamics of Leadership (F-Sp) . . . . .	3
FIN 100	Basic Principles of Organizational Finance (Sp) . . .	1
MGT 283	Organizational Planning for the New Economy (n/o) . . . . .	3
MGT 289	Capstone Project in Leadership (Sp) . . . . .	2
<b>Subtotal . . . . .</b>		<b>9</b>

### Required Support Course

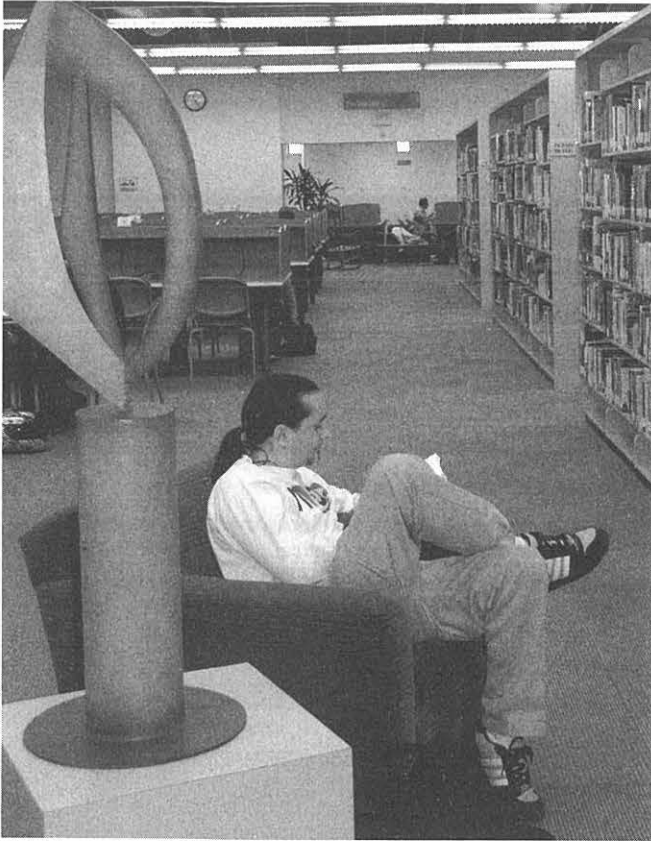
Elective . . . . .	3
Complete 3 credits from the following list: MGT, BUS, MKT, PAD or select another elective with the approval of an advisor or counselor.	
<b>Subtotal . . . . .</b>	<b>3</b>

Select one of the following concentrations:

### Government

MGT 130*	Improving Service Quality (Sp) . . . . .	3
PAD 105	Introduction to Public Administration (F) . . . . .	3
Elective . . . . .		3
Complete 3 credit hours from the following list: AJS, ECE, EDU, FSC, LEN, PAD, SSE		
<b>Subtotal . . . . .</b>		<b>9</b>

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule



## Literature

Explore the world's literature by taking classes focusing on world, British and American writers including their novels, poetry, plays and more.

Literature courses are offered as part of the requirements of the **Associate of Arts in Liberal Arts degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with literature faculty to plan their course of study using the appropriate transfer guide.

### *What can I do with my studies in literature?*

**Academic options:** continue studies towards a Bachelor of Arts in English, education or other humanities disciplines.

Department/Contact Information: Division Deans: 206-5105 (Desert Vista); 206-7045

### Entrepreneurship

BUS 125	eCommerce (F-Sp-S)	
or MGT 124	Small Business Management (F-Sp)	3
BUS 250*	Entrepreneurship (Sp)	3
Elective		3
Complete 3 credits from the following list:		
BUS 100 (F-Sp-S), 200 (n/o), 220 (F-Sp-S),		
MGT 122 (F-Sp-S), 130 (n/o)		
<b>Subtotal</b>		<b>9</b>

### Non-Profit

MGT 285	Leading a Non-Profit Organization (n/o)	3
MGT 286	Funding and Finance in a Non-Profit Organization (n/o)	3
MGT 287	Strategic Community Alliances of Non-Profit Organizations (F)	3
<b>Subtotal</b>		<b>9</b>

### Electives

Complete 12 credits with approval from an advisor or counselor.

<b>Subtotal</b>	<b>12</b>
<b>Total credits as displayed</b>	<b>31</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



# Machine Tool Technology

Gain skills and experience needed for employment as a machinist or to transfer to a university to pursue an engineering degree with an emphasis in manufacturing.

## Machine Tool Technology — Certificate: Machine Operator Concentration

Understand how a machine shop works and how to operate specialized equipment. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment as a machine operator.

**Academic Options:** Pursue the Machine Tool Technology - AAS Degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** CRTMACHINTOOL

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
MAC 110	Manual Machine Shop (F-Sp-S)	4
MAC 130*	Jig and Fixture Design (F-Sp)	3
<b>Subtotal</b>		<b>7</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading and Sketching for Manufacturing (F-Sp)	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp)	3
GTM 105*	Applied Technical Mathematics (F-Sp-S)	3
<b>Subtotal</b>		<b>10</b>
<b>Total credits as displayed</b>		<b>17</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Machine Tool Technology — Certificate: Manual Machinist Concentration

Gain skills in operating manual machines. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment as a manual machinist or machinist apprentice.

**Academic Options:** Continue your studies by completing a Computer Numerical Control Machinist Certificate or the Machine Tool Technology - AAS Degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** CRTMACHINTOOL

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Analysis and Critical Thinking Requirement

GTM 105 fulfills this requirement. †

**Subtotal** ..... 0

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
MAC 110	Manual Machine Shop (F-Sp-S)	4
MAC 125*	Mechanical Inspection (F-Sp)	4
MAC 130*	Jig and Fixture Design (F-Sp)	3
MAC 275	Applied Metallurgy (F)	4
<b>Subtotal</b>		<b>15</b>

### Required Support Courses

CAD 117	Print Reading and Sketching for Manufacturing (F-Sp)	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp)	3
GTM 105*	Applied Technical Mathematics (F-Sp-S)	3
<b>Subtotal</b>		<b>10</b>
<b>Total credits as displayed</b>		<b>25</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

## Machine Tool Technology — Certificate: Mechanical Inspector Concentration

Gain skills in mechanical inspection. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment as a mechanical inspector.

**Academic Options:** Continue your studies by completing the Machine Tool Technology - AAS Degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** CRTMACHNTOOL

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
MAC 125*	Mechanical Inspection (F-Sp) . . . . .	4
MAC 275	Applied Metallurgy (F) . . . . .	4
<b>Subtotal . . . . .</b>		<b>8</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading and Sketching for Manufacturing (F-Sp) . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) . . . . .	3
GTM 105*	Applied Technical Mathematics (F-Sp-S) . . . . .	3
<b>Subtotal . . . . .</b>		<b>10</b>
<b>Total credits as displayed . . . . .</b>		<b>18</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Machine Tool Technology — Certificate: Computer Numerical Control (CNC) Machinist Concentration

Learn how to program and maintain CNC machines. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

Before you can enroll in this program, you must have two years of experience as a manual machinist or CNC operator or have taken MAC 110.

### What can I do with this certificate?

**Career Options:** Entry-level employment as CNC machinists and CNS machine operators.

**Academic Options:** Continue your studies by completing the Machine Tool Technology - AAS Degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Entrance requirement:** Two years minimum manual machinist or CNC operator experience required, or MAC 110.

**Program Identification Code:** CRTMACHNTOOL

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
MAC 125*	Mechanical Inspection (F-Sp) . . . . .	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F-Sp) . . . . .	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F-Sp) . . . . .	4
MAC 160*	Computer Numerical Control (CNC) Lathe Programming (S) . . . . .	4
<b>Subtotal . . . . .</b>		<b>16</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading and Sketching for Manufacturing (F-Sp) . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) . . . . .	3
GTM 105*	Applied Technical Mathematics (F-Sp-S) . . . . .	3
<b>Subtotal . . . . .</b>		<b>10</b>
<b>Total credits as displayed . . . . .</b>		<b>26</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Machine Tool Technology — Certificate: Computer Numerical Control (CNC) Programmer Concentration

Learn how to program CNC equipment. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

Before you can enroll in this program, you must have two years of experience as a manual machinist or CNC operator or have taken MAC 110.

### What can I do with this certificate?

**Career Options:** Entry-level employment as CNC programmers and operators.

**Academic Options:** Continue your studies by completing the Machine Tool Technology - AAS Degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** CRTMACHNTOOL

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement .....	3
See General Education Section, page 56	
Analysis and Critical Thinking Requirement .....	†
GTM 105 fulfills this requirement	
<b>Subtotal .....</b>	<b>3</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

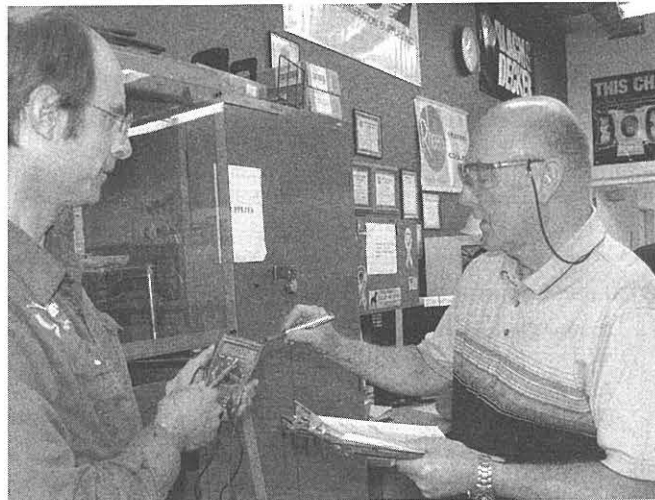
MAC 150*	Computer Numerical Control (CNC): Mill Programming I (F-Sp) .....	4
MAC 155*	Computer Numerical Control (CNC): Mill Programming II (F-Sp) .....	4
MAC 160*	Computer Numerical Control (CNC): Lathe Programming (S) .....	4
MAC 257 *	Computer Aided Machining (CAM ) I (F-Sp) .....	4
MAC 258*	Computer Aided Machining (CAM ) II (Sp) .....	4
MAC 259*	Computer Aided Machining (CAM ) III: Solid Modeling (S) .....	4
<b>Subtotal .....</b>		<b>24</b>

### Required Support Courses

CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) ..	3
GTM 105*	Applied Technical Mathematics (F-Sp-S) .....	3
<b>Subtotal .....</b>		<b>6</b>
<b>Total credits as displayed .....</b>		<b>33</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.



## Machine Tool Technology — Certificate: Electrical Discharge Machine (EDM) Operator Concentration

Learn to operate electrical discharge machines. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment operating electrical discharge machines.

**Academic Options:** Continue your studies by completing the Machine Tool Technology - AAS Degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** CRTMACHNTOOL

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

MAC 110	Manual Machine Shop (F-Sp-S) .....	4
MAC 140 *	Introduction to Electrical Discharge Machining (F) ...	4
MAC 150*	Computer Numerical Control (CNC): Mill Programming I (F-Sp) .....	4
MAC 155*	Computer Numerical Control (CNC): Mill Programming II (F-Sp) .....	4
MAC 245*	Wire Electrical Discharge Machining and Programming (Sp) .....	4
<b>Subtotal .....</b>		<b>20</b>

### Required Support Courses

GTM 105*	Applied Technical Mathematics (F-Sp-S) .....	3
<b>Subtotal .....</b>		<b>3</b>
<b>Total credits as displayed .....</b>		<b>23</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

## Machine Tool Technology — Certificate: Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Machinist Concentration

Learn to operate and program electrical discharge machines using MasterCam software. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment programming electrical discharge machines.

**Academic Options:** Continue your studies by completing the Machine Tool Technology - AAS Degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** CRTMACHNTOOL

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 3  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... †  
GTM 105 fulfills this requirement.

**Subtotal** ..... 3

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

MAC 110 Manual Machine Shop (F-Sp-S) ..... 4

MAC 140\* Introduction to Electrical Discharge Machining (F) ... 4

MAC 150\* Computer Numerical Control (CNC):  
Mill Programming I (F-Sp) ..... 4

MAC 155\* Computer Numerical Control (CNC):  
Mill Programming II (F-Sp) ..... 4

MAC 245\* Wire Electrical Discharge Machining and  
Programming I (Sp) ..... 4

MAC 257\* Computer Aided Machining (CAM) I (F-Sp) ..... 4

MAC 258\* Computer Aided Machining (CAM) II (Sp) ..... 4

**Subtotal** ..... 28

### Required Support Courses

CAD 172\* Geometric Dimensioning and Tolerancing (F-Sp) ... 3

GTM 105\* Applied Technical Mathematics (F-Sp-S) ..... 3

**Subtotal** ..... 6

**Total credits as displayed** ..... 37

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

## Machine Tool Technology — Associate of Applied Science Degree for Direct Employment

Learn fundamental skills in machine shop operations, specializing in one of the concentrations listed below. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of daytime and evening classes. The Machine Operator and CNC Programmer concentrations can also be completed by taking classes exclusively on weekdays.

### What can I do with this degree?

**Career Options:** Begin a career in machine tool technology.

Before enrolling in this program you must meet the following Entrance Requirement: MAC 100 or a score of 80% or better on a machine tool assessment test.

**Academic Options:** Transfer to a Bachelor of Applied Science degree program.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** AASMACHNTOOL

### General Education Requirements

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... †  
GTM 105 and MAC 275 fulfill this requirement.

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

**Subtotal** ..... 12

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

MAC 110 Manual Machine Shop (F-Sp-S) ..... 4

MAC 275 Applied Metallurgy (F) ..... 4

**Subtotal** ..... 8

### Required Support Courses

CAD 117 Print Reading and Sketching for  
Manufacturing (F-Sp) ..... 4

CAD 172\* Geometric Dimensioning and Tolerancing (F-Sp) ... 3

GTM 105\* Applied Technical Mathematics (F-Sp-S) ..... 3

**Subtotal** ..... 10

*continued next page*



**Core Options: - A grade of C or better is required for graduation.**

Choose one of the following concentrations (options):

Department chair or faculty advisor approval is recommended in the selection of the program option.

**Machine Operator**

MAC 130\* Jig and Fixture Design (F-Sp) ..... 3

ELEC Technical Electives ..... 27

Complete 27 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD.

**Subtotal** ..... 30

**Manual Machinist**

CAD 152\* Mechanical Computer Aided Drafting and Design I (F-Sp-S) ..... 4

MAC 125\* Mechanical Inspection (F-Sp) ..... 4

MAC 130\* Jig and Fixture Design (F-Sp) ..... 3

ELEC Technical Electives ..... 19

Complete 18 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD.

**Subtotal** ..... 30

**Mechanical Inspector**

CAD 152\* Mechanical Computer Aided Drafting and Design I (F-Sp-S) ..... 4

MAC 125\* Mechanical Inspection (F-Sp) ..... 4

ELEC Technical Electives ..... 22

Complete 22 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD.

**Subtotal** ..... 30

**Computer Numerical Control (CNC) Machinist**

MAC 125\* Mechanical Inspection (F-Sp) ..... 4

MAC 150\* Computer Numerical Control (CNC) Mill Programming I (F-Sp) ..... 4

MAC 155\* Computer Numerical Control (CNC) Mill Programming II (F-Sp) ..... 4

MAC 160\* Computer Numerical Control (CNC) Lathe Programming (S) ..... 4

ELEC Technical Electives ..... 14

Complete 14 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD.

**Subtotal** ..... 30

**Computer Numerical Control (CNC) Programmer**

MAC 150\* Computer Numerical Control (CNC) Mill Programming I (F-Sp) ..... 4

MAC 155\* Computer Numerical Control (CNC) Mill Programming II (F-Sp) ..... 4

MAC 257\* Computer Aided Machining (CAM) I (F-Sp) ..... 4

MAC 258\* Computer Aided Machining (CAM) II (Sp) ..... 4

MAC 259\* Computer Aided Machining (CAM) III: Solid Modeling (S) ..... 4

MAC 160\* Computer Numerical Control (CNC): Lathe Programming (S) ..... 4

ELEC Technical Electives ..... 6

Complete 6 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD

**Subtotal** ..... 30

**Electrical Discharge Machine (EDM) Operator**

MAC 140\* Introduction to Electrical Discharge Machining (F) . 4

MAC 150\* Computer Numerical Control (CNC) Mill Programming I (F-Sp) ..... 4

MAC 155\* Computer Numerical Control (CNC) Mill Programming II (F-Sp) ..... 4

MAC 245\* Wire Electrical Discharge Machining and Programming I (Sp) ..... 4

ELEC Technical Electives ..... 14

Complete 14 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD

**Subtotal** ..... 30

**Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Machinist**

MAC 140\* Introduction to Electrical Discharge Machining (F) . 4

MAC 150\* Computer Numerical Control (CNC) Mill Programming I (F-Sp) ..... 4

MAC 155\* Computer Numerical Control (CNC) Mill Programming II (F-Sp) ..... 4

MAC 245\* Wire Electrical Discharge Machining and Programming (Sp) ..... 4

MAC 257\* Computer Aided Machining (CAM) I (F-Sp) ..... 4

MAC 258\* Computer Aided Machining (CAM) II (Sp) ..... 4

ELEC Technical Electives ..... 6

Complete 6 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD

**Subtotal** ..... 30

**Total credits as displayed** ..... 60

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

## Manufacturing Technology — Associate of Science Degree for Transfer

Prepare to transfer to a university program in an engineering field with an emphasis on manufacturing. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this degree?

**Career Options:** Earn your bachelor's degree in manufacturing or in engineering.

**Academic Options:** Transfer to a university to pursue a degree in engineering with emphasis in manufacturing. All three Arizona universities have engineering majors appropriate to this curriculum.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134;  
Lead Faculty: 206-7132

**Program Identification Code:** AOSMANUFTECH

### Arizona General Education Curriculum Requirements (AGEC-S) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general course.

English Composition ..... †  
WRT 101\*, 102\* fulfill this requirement

Humanities and Fine Arts ..... 6  
See General Education Section, page 57

Biological and Physical Sciences ..... †  
PHY 210/210LB/IN\* and 216/216LB/IN\* fulfill this requirement.

Mathematics ..... †  
MAT 220 fulfills this requirement.

Social and Behavioral Sciences ..... 3  
ECN 200 fulfills 3 credits of this requirement See General Education Section, page 57

Other Requirement Options ..... †  
MAT 231 and 241 fulfills this requirement

AGEC Special Requirements  
The I, C, and G requirement should be fulfilled by courses in the above categories. See General Education Section, page 57

**Subtotal** ..... 9¥

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

MAC 110	Manual Machine Shop (F-Sp-S)	4
MAC 125*	Mechanical Inspection (F-Sp)	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F-Sp)	4

Machine Tool Elective ..... 4  
Complete 4 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: MAC 155, 160, or 257

**Subtotal** ..... 16



### Required Support Courses-

**A grade of C or better is required for graduation.**

CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp)	3
ECN 200*	Basic Economic Principles (F-Sp-S)	3
MAT 220*	Calculus I (F-Sp-S)	5
MAT 231*	Calculus II (F-Sp-S)	4
MAT 241*	Calculus III (F-Sp-S)	4
MAT 262*	Differential Equations (F-Sp-S)	3
PHY 210/210LB/IN*	Introductory Mechanics (F-Sp)	5
PHY 216/216LB/IN*	Introductory Electricity and Magnetism (F-Sp)	5
WRT 101*	Writing I (F-Sp-S)	3
WRT 102*	Writing II (F-Sp-S)	3

**Subtotal** ..... 38

**Total credits as displayed** ..... 63§

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

¥ AGEC requires 35 credits. The subtotal shows the AGEC credits not fulfilled by core, support, or second language courses.

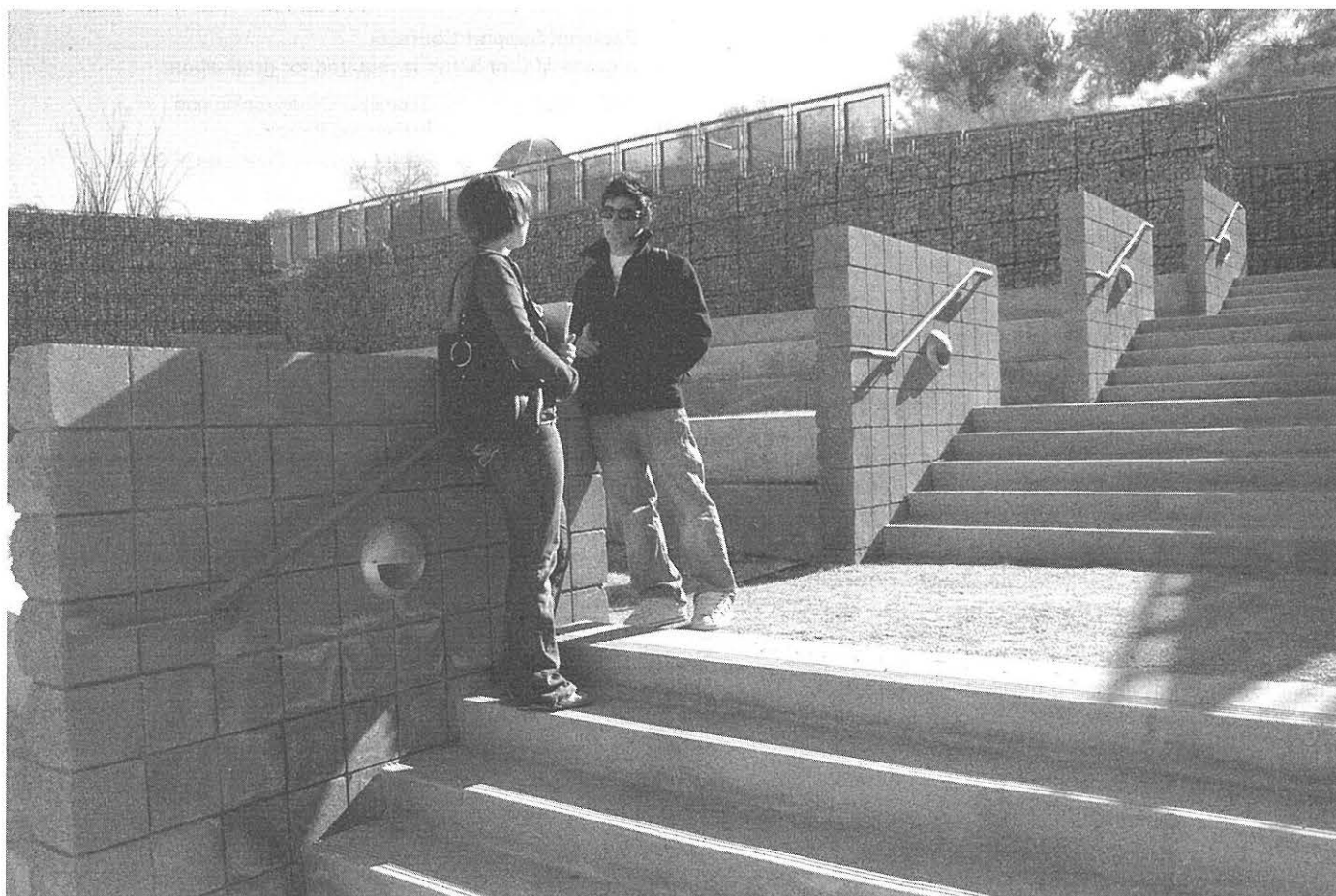
§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Mathematics

A student planning on obtaining a mathematics degree should follow the **Associate of Arts in Liberal Arts Degree for Transfer**. A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a mathematics faculty advisor to plan courses. The student who plans on transferring to an upper division school to complete his/her degree should also contact an advisor or counselor from their chosen school for verification of transfer courses.

**Information:** All students enrolling in their first mathematics course with the College and all new, full-time students are required to take the mathematics assessment tests. Completion of prerequisite courses within the last 3 years with a grade of C or better or a satisfactory score on the assessment test is required for all math courses.

**Program Identification Code:** AOALIBRALART



F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

# Medical Laboratory Technician

## Medical Laboratory Technician — Associate of Applied Science Degree for Direct Employment

Prepare for a career in medical laboratory technology through classroom study and supervised clinical experience. Learn about blood, analysis of body fluids, bacteriology, parasitology, clinical chemistry and other aspects of medical laboratory technology. Complete this program in a combination of day, evening and weekend classes.

**Before enrolling** in this program you must meet certain requirements:

- MAT 122 or higher
- BIO 205
- BIO 156 with a grade of C or better, or placement into BIO 201
- CHM 080 or 130, or placement into CHM 151

### What can I do with this degree?

**Career Options:** Work in the clinical laboratory of a hospital, clinic, reference laboratory, blood bank, coroner's office or in biomedical research.

**Academic Options:** While this degree is not designed for transfer to a 4-year university, the courses can apply toward the first two-years of study for a Bachelor of Applied Science in Medical Technology.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763;  
Lead Faculty: 206-6088

**Program Identification Code:** AASMLT

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
Required support courses fulfill this requirement

Analysis and Critical Thinking Requirement ..... †  
Required support courses fulfill this requirement

Humanities and Social Science Requirement ..... 3  
BIO 250 fulfills 3 credits of this requirement

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

**Subtotal** ..... 4-6

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

OAP 162	Medical Terms I (F-Sp) .....	3
BIO 110	Techniques and Mathematics for the Laboratory (F-Sp) .....	2
BIO 250	Biomedical Ethics (F) .....	3
MLT 199*	Introduction to Co-op: Medical Laboratory Technician (Sp) .....	1
MLT 199WK*	Co-op Work in Medical Laboratory Technology (Sp) .....	4.5
MLT 200*	Urinalysis / Body Fluids (F) .....	3
MLT 211*	Hematology (Sp) .....	4
MLT 221*	Clinical Chemistry (Sp) .....	4
MLT 231*	Immunohematology / Immunology (F) .....	4
MLT 251*	Clinical Microbiology (F) .....	4
MLT 260*	Parasitology and Immunology/Serology (F) .....	3
MLT 299*	Introduction to Co-op: Medical Laboratory Technician (S) .....	1
MLT 299WK*	Co-op Work in Medical Laboratory Technology (S) .....	4.5

**Subtotal** ..... 41

### Required Support Courses -

**A grade of C or better is required for graduation.**

BIO 201IN*	Human Anatomy and Physiology I (F-Sp-S) .....	4
BIO 202IN*	Human Anatomy and Physiology II (F-Sp-S) .....	4
CHM 151*	General Chemistry I (F-Sp-S) .....	4
CHM 152*	General Chemistry II (F-Sp-S) .....	4
MAT 151*	College Algebra (F-Sp-S) .....	4
SPE 120	Business and Professional Communication (F-Sp-S) .....	3
WRT 101*	Writing I (F-Sp-S) .....	3

**Subtotal** ..... 28

**Total credits as displayed** ..... 73-75§

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



# Nursing

Gain skills in patient care for employment as a registered nurse, licensed practical nurse, or patient care technician.

## Practical Nursing — Certificate for Direct Employment

Learn advanced skills in patient care and prepare to take exams for licensure. Students can complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of daytime, evening and weekend classes.

**Before enrolling** in this program you must meet certain requirements:

This degree program requires a special program application. Students may request a program application when all prerequisites are complete.

- Reading assessment score of 90 or completion of REA 112.
- Math assessment score at MAT 151 or higher, or completion of MAT 122. Completion of CHM 130/130LB or 130IN with at least a C grade within the last eight years.
- Completion of BIO 201IN and BIO 202IN within the last eight years with at least a C grade in both courses and a combined average grade of at least a B.
- Special Admission

To participate in the clinical portion of the program, the students must:

1. Obtain an Arizona DPS Fingerprint Clearance Card.
2. Pass a urine toxicology screening exam for various health care agencies.
3. Be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. The clinical nursing experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients' lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

Students who opt to leave the nursing program at the end of the first semester, or at the end of the first year, may re-enter the second or third semester without need for further course work, if they re-enter within one (1) year as based on space availability.

This certificate is offered at the West Campus and earns college credit. A Practical Nursing certificate is also offered at the Center for Training and Development but you will not earn college credit.

### What can I do with this certificate?

**Career Options:** Take the National Council Licensure Examination for work as a licensed practical nurse.

**Academic Options:** Take courses to qualify as a registered nurse.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-6661

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 fulfills this requirement.

Analysis and Critical Thinking Requirement ..... †  
Program prerequisites fulfill this requirement

**Subtotal** ..... **0**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

NRS 104/ 104LC/ 104LS*	Nursing Process I (F-Sp)	8
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NRS 105/ 105LC/ 105LS*	Nursing Process II (F-Sp)	9
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NRS 180*	Transition to Practical Nursing (Sp)	2.5
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**Subtotal** ..... **19.5**

### Required Support Courses

BIO 205IN*	Microbiology (F-Sp-S)	4
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ECE 107* or ECE 117*	Human Development and Relations (F-Sp-S) Child Growth and Development (F-Sp-S)	3
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HCA 102	Drug Calculations (F-Sp)	1
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HCA 155	Introduction to Pharmacology (F-Sp)	3
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WRT 101*	Writing I (F-Sp-S)	3
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**Subtotal** ..... **14**

**Total credits as displayed.** ..... **33.5**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

## Associate Degree Nursing — Associate of Applied Science Degree for Direct Employment

Get comprehensive education and practical experience in nursing, and prepare to become licensed as a registered nurse. Students who choose to leave the program before completing the degree may qualify for other certificates. Students may complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of daytime, evening and weekend classes. This program has approval from the Arizona State Board of Nursing, and is accredited by the National League of Nursing Accrediting Commission, 61 Broadway – 33rd Floor, New York City, NY 10006, (800) 669-1656 ext. 153.

**Before enrolling** in this program you must meet certain requirements:

This degree program requires a special program application. Students may request a program application when all prerequisites are complete.

Students must have completed the following basic requirements before they may begin the application process.

- Reading assessment score of 90 or completion of REA 112.
- Math assessment score at MAT 151 or higher, or completion of MAT 122.
- Completion of CHM 130/130LB/130IN with at least a C or better or Chemistry assessment score of 19 or higher.
- Completion of BIO 201IN and BIO 202IN within the last eight years with at least a C grade in both courses and a combined average grade of B or better.
- Special Admission

Practical Nurse graduates from Pima's Center for Training and Development and Licensed Practical nurses are eligible to apply for entry into the second year of the Associate Degree Nursing (ADN) Program by completing the prerequisites listed above. If accepted, the student must successfully complete a three credit transition course (NRS 188/188LB) and meet all acceptance requirements for admission into the third semester of the Associate Degree Nursing (ADN) Program.

Students currently enrolled in accredited out-of-state ADN Nursing Programs may apply to transfer into the second or third semester of the nursing program. Interested students should contact the Health Related Professions admissions office. Admission is dependent on evaluation of general education and nursing education course work as well as seat availability.

Students who opt to leave the nursing program at the end of the first semester, or at the end of the first year, may re-enter the second or third semester without need for further course work, if they re-enter within one (1) year as based on space availability.

### What can I do with this degree?

**Career Options:** Take the National Council Licensure Examination to become a registered nurse.

**Academic Options:** Pursue a bachelor's degree in nursing at a university.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783;  
Lead Faculty: 206-6661

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . †  
WRT 101 and WRT 102 fulfill this requirement.

Analysis and Critical Thinking Requirement . . . . . †  
Program prerequisites fulfill this requirement.

Humanities and Social Science Requirement . . . . . 3  
PSY 101 fulfills part of this requirement.  
See General Education Section, page 56

Computer and Information Literacy Requirement . . . . . †  
Core or support courses fulfill this requirement . . . . .

**Subtotal . . . . . 3**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

NRS 104/104LC/104LS\* Nursing Process I (F-Sp) . . . . . 8

NRS 105/105LC/105LS\* Nursing Process II (F-Sp) . . . . . 9

NRS 201/201LC\* Nursing Process III (F-Sp-S) . . . . . 9

NRS 202/202LC\* Nursing Process IV (F-Sp) . . . . . 9

NRS 203\* Trends and Issues in Nursing (F-Sp) . . . . . 1

**Subtotal . . . . . 36**

### Required Support Courses -

**A grade of C or better is required for graduation.**

BIO 201IN\* Human Anatomy and Physiology I (F-Sp-S) . . . . . 4

BIO 202IN\* Human Anatomy and Physiology II (F-Sp-S) . . . . . 4

BIO 205IN\* Microbiology (F-Sp-S) . . . . . 4

ECE 107\* Human Development and Relations (F-Sp-S)  
or ECE 117\* Child Growth and Development (F-Sp-S) . . . . . 3

FSN 127IN Human Nutrition and Biology (F-Sp-S)  
or FSN 154 Nutrition (F-Sp-S) . . . . . 3-4

HCA 102 Drug Calculations (F-Sp) . . . . . 1

HCA 155 Introduction to Pharmacology (F-Sp) . . . . . 3

PSY 101\* Introduction to Psychology (F-Sp-S) . . . . . 4

WRT 101\* Writing I (F-Sp-S) . . . . . 3

WRT 102\* Writing II (F-Sp-S) . . . . . 3

**Subtotal . . . . . 32-33**

**Total credits as displayed . . . . . 71-72§**

† Support or core course(s) fulfill this requirement.

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Office and Administrative Professions

Prepare for a career in high-demand administrative support services and specialize in medical, legal or computer applications.

## Office Assistant — Certificate for Direct Employment

Gain skills to do a variety of tasks within an office operation. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment doing office tasks.

**Academic Options:** Continue your studies with courses leading to an Office Specialist certificate.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134  
Lead Faculty: 206-7145

**Program Identification Code:** CRTADMINAIDE

An office assistant performs a variety of tasks to facilitate office operations. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus.

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
OAP 111	Computer Keyboarding and Document Production (F-Sp-S)	3
OAP 123*	Professional Development for Administrative Support (F-Sp)	3
OAP 132	Records Management: Filing Systems (F-Sp)	3
OAP 151*	Business English (F-Sp)	3
OAP 171*	Office Procedures (F-Sp)	4
CSA 182A	Microsoft Windows: Current Version Module A (F-Sp-S)	1
<b>Subtotal</b>		<b>17</b>
<b>Required Support Courses</b>		
CSA 120	Word Processing: Word (F-Sp-S)	3
CSA 152A	Internet Browser: Microsoft Explorer Module A (F-Sp-S)	1
<b>Subtotal</b>		<b>4</b>
<b>Total credits as displayed</b>		<b>21</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Office Specialist — Certificate for Direct Employment

Learn to manage, coordinate and organize an office environment. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Obtain employment in the high-demand administrative support field.

**Academic Options:** Continue your studies with other business careers programs.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134  
Lead Faculty: 206-7145

**Program Identification Code:** CRTADMINSPEC

An office specialist manages, coordinates, and organizes an office to provide administrative support to an organization. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus.

### General Education Requirements -

**A grade of C or better is required for graduation.**

Communication Requirement	†
OAP 151* fulfills this requirement	
Analysis and Critical Thinking Requirement	3
See General Education Section, page 56	
<b>Subtotal</b>	<b>3</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
OAP 111	Computer Keyboarding and Document Production (F-Sp-S)	3
OAP 114*	Computer Keyboarding: Skillbuilding (F-Sp-S)	3
OAP 123*	Professional Development for Administrative Support (F-Sp)	3
OAP 132	Records Management: Filing Systems (F-Sp)	3
OAP 151*	Business English (F-Sp)	3
OAP 171*	Office Procedures (F-Sp)	4
OAP 224*	Machine Transcription (F-Sp)	3
OAP 251*	Business Communications (F-Sp)	3
CSA 170	Database: Access (F-Sp-S)	3
CSA 182A	Microsoft Windows: Current Version Module A (F-Sp-S)	1
<b>Subtotal</b>		<b>29</b>

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule



### Required Support Courses

ACC 100	Practical Accounting Procedures (F-Sp-S).....	3
CSA 110	Spreadsheets: Microsoft Excel (F-Sp-S).....	3
CSA 120	Word Processing: Word (F-Sp-S).....	3
CSA 152A	Internet Browser: Microsoft Explorer Module A (F-Sp-S).....	1
<b>Subtotal.....</b>		<b>10</b>
<b>Total credits as displayed.....</b>		<b>42</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

## Health Information Technology — Certificate for Direct Employment

Become a Health Information Technician, specializing in medical billing and insurance, coding, front office support, or medical transcription. Many of the certificate options can be completed by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Become a coder, insurance or medical records technician, or transcriptionist in a medical facility or health care or insurance agency.

**Academic Options:** Continue your studies by taking additional courses toward the Health Information Technology concentration of the Office and Administrative Professions degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134  
Lead Faculty: 206-7145

**Program Identification Code:** CRT0AH

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

HIT 290*	Health Information Technology Internship (F-Sp)...	4
(For students in their final semester of HIT course work.)		
OAP 162	Medical Terms I (F-Sp).....	3
OAP 262*	Medical Terms II (F-Sp).....	3
OAP 263*	Medical Terminology for Disease Pathology (F-Sp).....	3
<b>Subtotal.....</b>		<b>13</b>

### Medical Billing and Insurance Specialty

HIT 101*	ICD-9 Coding I (F-Sp).....	3
HIT 102*	CPT Coding I (F-Sp).....	3
HIT 110*	Medical Billing and Insurance I (F-Sp-S).....	3
HIT 111*	Medical Billing and Insurance II (F-Sp-S).....	3
CSA 110	Spreadsheets: Microsoft Excel (F-Sp-S).....	3
<b>Subtotal.....</b>		<b>15</b>

### Medical Coding Specialty

HIT 101*	ICD-9 Coding I (F-Sp).....	3
HIT 102*	CPT Coding I (F-Sp).....	3
HIT 120	Pharmacology for Health Information Technology (F-Sp).....	3
HIT 201*	ICD-9 Coding II (F-Sp).....	3
HIT 202*	CPT Coding II (F-Sp).....	3
<b>Subtotal.....</b>		<b>15</b>

### Medical Front Office Support Specialty

HIT 100	Introduction to Health Information Management (F-Sp).....	2
HIT 110*	Medical Billing and Insurance I (F-Sp-S).....	3
OAP 132	Records Management: Filing Systems (F-Sp).....	3
OAP 161*	Medical Office Procedures (F-Sp).....	4
CSA 120	Word Processing: Word (F-Sp-S).....	3
<b>Subtotal.....</b>		<b>15</b>

### Medical Transcription Specialty

BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-S).....	4
HIT 120	Pharmacology for Health Information Technology (F-Sp).....	3
OAP 164*	Medical Transcription I (F-Sp).....	3
OAP 264*	Medical Transcription II (F-Sp).....	3
OAP 266	Medical Transcription III (F-Sp).....	3
<b>Subtotal.....</b>		<b>16</b>
<b>Total credits as displayed.....</b>		<b>28-29</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Office and Administrative Professionals — Associate of Applied Science Degree for Direct Employment

Prepare for a career as an office assistant, secretary or medical transcriber. Many of the options in this program can be completed exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment as administrative assistant, computer applications office assistant, legal secretary, medical front office support or medical transcriber.

**Academic Options:** Continue your studies with other business programs.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134  
Lead Faculty: 206-7145.

**Program Identification Code:** AASADMINSUPP

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
OAP 151 and 251 fulfill this requirement

Analysis and Critical Thinking Requirement ..... 2-6  
See General Education Section, page 56  
BIO 160IN in the Medical Coding and Transcription specialties fulfill part of this requirement.)

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
Required core courses fulfill this requirement.

**Subtotal ..... 8-12**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

CSA 110	Spreadsheets: Microsoft Excel (F-Sp-S) .....	3
CSA 120	Word Processing: Word (F-Sp-S) .....	3
CSA 152	Internet Browser: Microsoft Explorer (F-Sp-S) .....	2
CSA 170	Database: Access (F-Sp-S) .....	3
CSA 182A	Microsoft Windows: Current Version Module A (F-Sp-S) .....	1
OAP 111	Computer Keyboarding and Document Production (F-Sp-S) .....	3
OAP 123*	Professional Development for Administrative Support (F-Sp) .....	3
OAP 151*	Business English (F-Sp) .....	3
OAP 251*	Business Communication (F-Sp) .....	3
<b>Subtotal .....</b>		<b>24</b>

### Required Support Courses

OAP 199*	Introduction to Co-op: Office/Administrative Professional (F-Sp-S) .....	1
OAP 199WK*	Co-op Work: Office/Administrative Professional (F-Sp-S) .....	3
<b>Subtotal .....</b>		<b>4</b>

### Concentrations: -

**A grade of C or better is required for graduation.**

Choose one of the following concentrations:

(Department faculty advisor or counselor approval is recommended in the selection of the program concentration.)

#### Administrative Assistant

ACC 100	Practical Accounting Procedures (F-Sp-S) .....	3
CSA 107*	Microcomputer Software/Hardware Topics (F-Sp-S) .....	3
CSA 130A	PowerPoint: Module A (F-Sp-S) .....	1
OAP 114*	Computer Keyboarding: Skill Building (F-Sp-S) .....	3
OAP 132	Records Management: Filing Systems (F-Sp) .....	3
OAP 133	Records Management: Development of a Program (F-Sp) .....	3
OAP 171*	Office Procedures (F-Sp) .....	4
OAP 224*	Machine Transcription (F-Sp) .....	3
<b>Subtotal .....</b>		<b>23</b>

#### Legal Secretary Concentration

OAP 141	Legal Terms (F-Sp) .....	3
OAP 142*	Legal Procedures I (F-Sp) .....	3
OAP 143*	Legal Procedures II (F-Sp) .....	4
OAP 171*	Office Procedures (F-Sp) .....	4
OAP 224*	Machine Transcription (F-Sp) .....	3
OAP 242*	Legal Procedures III (F-Sp) .....	4
<b>Subtotal .....</b>		<b>21</b>

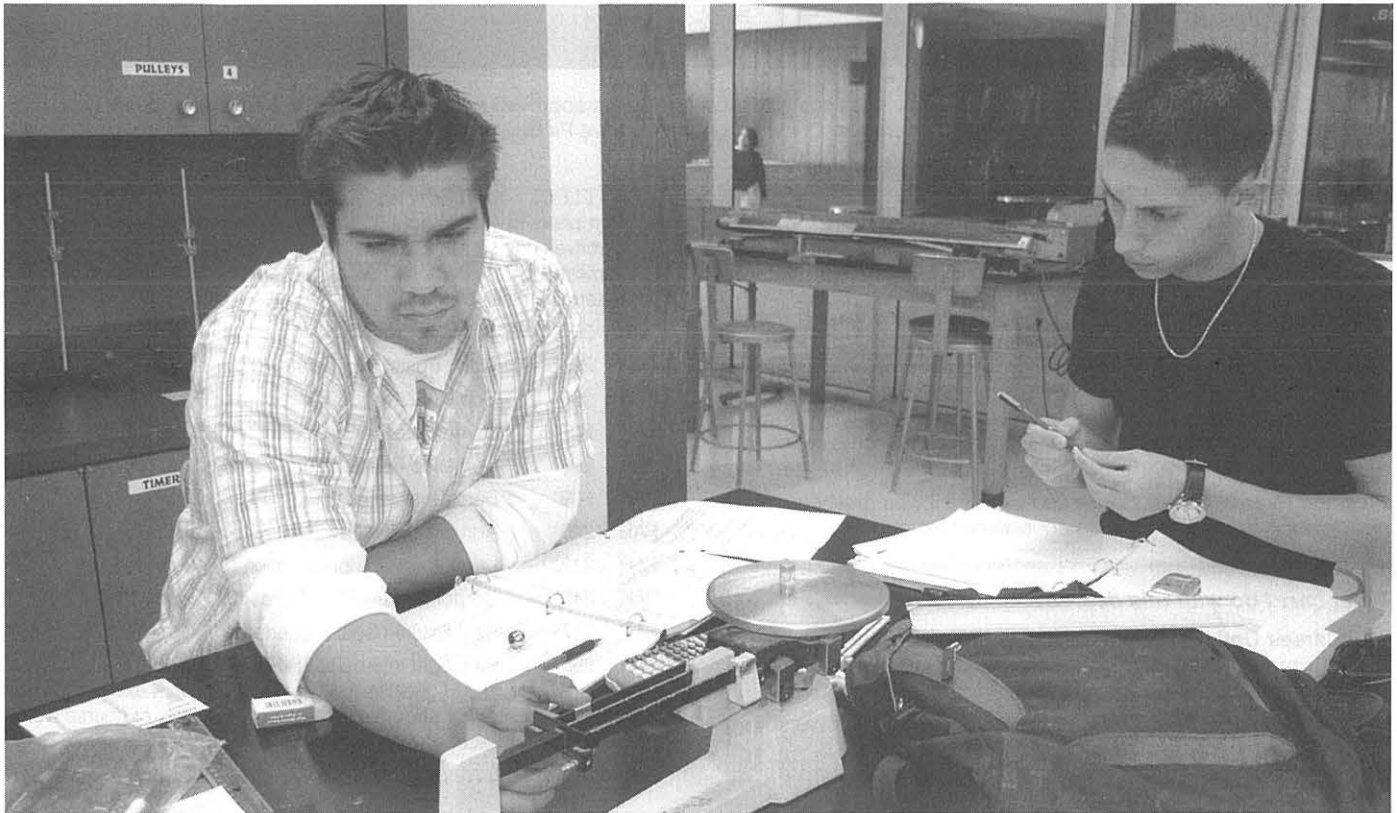
#### Health Information Technology Concentration

(Take the following four courses and one of the specialty areas below.)

HIT	290**	Health Information Technology Internship (F-Sp) . . . . . 4 (Replaces OAP 199 and 199WK for 4 credits.) (For students in their final semester of HIT course work.)
OAP	162	Medical Terms I (F-Sp) . . . . . 3
OAP	262*	Medical Terms II (F-Sp) . . . . . 3
OAP	263*	Medical Terminology for Disease Pathology (F-Sp) . 3

#### Medical Billing and Insurance Specialty

HIT 101*	ICD-9 Coding I (F-Sp) .....	3
HIT 102*	CPT Coding I (F-Sp) .....	3
HIT 110*	Medical Billing and Insurance I (F-Sp-S) .....	3
HIT 111*	Medical Billing and Insurance II (F-Sp-S) .....	3
<b>Subtotal .....</b>		<b>25</b>



### Medical Coding Specialty

BIO	160IN	Introduction to Human Anatomy and Physiology (F-Sp-S) . . . . .	4
		(Meets part of the Analysis and Critical Thinking requirement.)	
HIT	101*	ICD-9 Coding I (F-Sp) . . . . .	3
HIT	102*	CPT Coding I (F-Sp) . . . . .	3
HIT	120	Pharmacology for Health Information Technology (F-Sp) . . . . .	3
HIT	201*	ICD-9 Coding II (F-Sp) . . . . .	3
HIT	202*	Hospital Procedural Coding (F-Sp) . . . . .	3
HIT	290**	Health Information Technology Internships . . . . .	4
OAP	162	Medical Terms I (F-Sp) . . . . .	3
OAP	262	Medical Terms II (F-Sp) . . . . .	3
OAP	263	Medical Terminology for Disease Pathology (F-Sp) . . . . .	3
<b>Subtotal</b>			<b>32</b>

### Medical Front Office Support Specialty

HIT	100	Introduction to Health Information Management (F-Sp) . . . . .	3
HIT	110*	Medical Billing and Insurance I (F-Sp-S) . . . . .	3
HIT	290**	Health Information Technology Internships . . . . .	4
OAP	132	Records Management: Filing Systems (F-Sp) . . . . .	3
OAP	161*	Medical Office Procedures (F-Sp) . . . . .	4
OAP	162	Medical Terms I (F-Sp) . . . . .	3
OAP	262	Medical Terms II (F-Sp) . . . . .	3
OAP	263	Medical Terminology for Disease Pathology (F-Sp) . . . . .	3
<b>Subtotal</b>			<b>26</b>

### Medical Transcription Specialty

BIO	160IN	Introduction to Human Anatomy and Physiology (F-Sp-S) . . . . .	4
		(Meets part of the Analysis and Critical Thinking requirement.)	
HIT	120	Pharmacology for Health Information Technology (F-Sp) . . . . .	3
HIT	290**	Health Information Technology Internships (F-Sp) . . . . .	4
OAP	162	Medical Terms I (F-Sp) . . . . .	3
OAP	164*	Medical Transcription I (F-Sp) . . . . .	3
OAP	262	Medical Terms II (F-Sp) . . . . .	3
OAP	263	Medical Terminology for Disease Pathology (F-Sp) . . . . .	3
OAP	264*	Medical Transcription II (F-Sp) . . . . .	3
OAP	266*	Medical Transcription III (F-Sp) . . . . .	3
<b>Subtotal</b>			<b>29</b>
<b>Total credits as displayed</b>			<b>61-64§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

\*\* HIT 290 replaces OAP 199 and 199WK for 4 credits and is offered for HIT students in their final semester.

# Paralegal

Prepare for entry-level paralegal or legal assistant positions with these programs approved by the American Bar Association. Students interested in become a legal secretary should pursue an Office and Administrative Professions associate's degree.

## Paralegal — Associate of Applied Science Degree for Direct Employment

Learn to develop and modify legal procedures, prepare and interpret legal documents, prepare a case for trial, investigate the facts of a case, analyze and handle procedural problems and use information from the law library and other resources. Program includes a paralegal internship. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

**Program Prerequisites:** Before you can enroll, you must earn a high school diploma or pass an equivalency exam.

### What can I do with this degree?

**Career Options:** Become a paralegal or legal assistant, title examiner, trust officer, contract clerk, legal investigator or law firm administrator.

**Academic Options:** Transfer to Northern Arizona University's Public Agency Service degree.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134  
Lead Faculty: 206-7352

**Program Identification Code:** AASLEGALASST

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement .....†  
Support courses fulfill this requirement.

Analysis and Critical Thinking Requirement .....†  
Support courses fulfill this requirement.

Humanities and Social Science Requirement .....†  
Support courses fulfill this requirement.

Computer and Information Literacy Requirement .....†  
Support courses fulfill this requirement.

**Subtotal** ..... **0**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

PAR 101	Introduction to Paralegal Careers (F-Sp)	3
PAR 102*	Civil Litigation Procedures I (F-Sp)	3
PAR 103*	Legal Research (F-Sp)	3
PAR 104*	Paralegal Ethics (F-Sp)	3
PAR 106*	Civil and Criminal Evidence (F-Sp)	3
PAR 202*	Civil Litigation Procedures II (F-Sp)	3
PAR 211*	Legal Writing (F-Sp)	3
PAR 213*	Computer Assisted Legal Research (F-Sp)	3

**Subtotal** ..... **24**

### PAR ELEC PAR Specialty Area Electives

Complete 15 credits from the following PAR specialty area electives course list: (Specialty courses are not offered every semester. Consult with an PAR faculty advisor or counselor to determine class offerings.)

PAR 203*	Tort Law Procedures (F)	3
PAR 204*	Wills, Trusts, and Estates (F)	3
PAR 206*	Criminal Law and Procedures I (F)	3
PAR 207*	Criminal Law and Procedures II (Sp)	3
PAR 208*	Domestic Relations and Family Law (Sp)	3
PAR 209*	Bankruptcy Procedures (F)	3
PAR 210*	Administrative Law (n/o)	1-4
PAR 212*	Law Office Computerization (Sp)	3
PAR 215*	Corporate Law Procedures (Sp)	3
PAR 217*	Real Estate Legal Procedures (F-Sp)	3
PAR 290*	Paralegal Internship (F-Sp)	4

(The internship is designed to give the students work experience at an approved site. For students in their final semester of course work. Application and acceptance required.)

**Subtotal** ..... **15**

### Required Support Courses

ACC 100	Practical Accounting Procedures (F-Sp-S)	
or ACC 101	Financial Accounting (F-Sp-S)	3
CSA 101	Computer Fundamentals (F-Sp-S)	3
POS 201	American National Government and Politics (F-Sp-S)	
or POS 210	National and State Constitutions (F-Sp-S)	3
SPE 110	Public Speaking (F-Sp-S)	3
WRT 101*	Writing I (F-Sp-S)	3
WRT 102*	Writing II (F-Sp-S)	3

Analysis and Critical Thinking Requirement ..... 6  
Select from the following course lists only:

#### Mathematics Category

The Mathematics competency requirement must be met by assessment or course work. Any MAT course at the 100 level or higher (except MAT 108).

#### Science Category

AST 101 (F-Sp-S)/101LB (F-Sp-S) or 101IN (F-Sp-S), 102 (F-Sp-S)/102LB (F-Sp-S) or 102IN (F-Sp-S), 105 (F-Sp-S)/105LB (F-Sp-S) or 105IN (F-Sp-S);

BIO 100IN (F-Sp-S) or higher (except 198, 297, 298);

CHM 121 (F-Sp)/121LB (F-Sp-S) or 121IN (F-Sp-S) or higher (except 296, 198, 297);

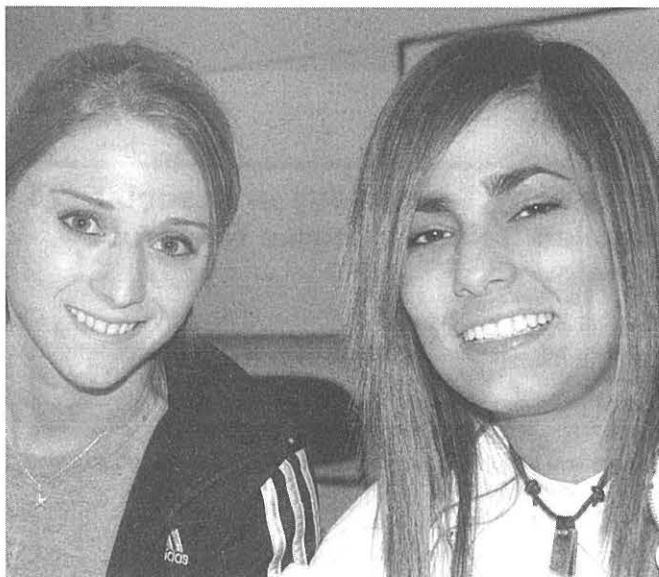
GEO 101 (F-Sp-S), 102 (F-Sp-S);

GLG 101IN (F-Sp-S), 102IN (F-Sp-S);

PHY 115/115LB+, 121 (F-Sp-S)/121LB (F-Sp-S) or 121IN (F-Sp-S), 122 (F-Sp-S)/122LB (F-Sp-S) or 122IN (F-Sp-S), 210 (F-Sp-S)/210LB (F-Sp-S) or 210IN (F-Sp-S), 216 (F-Sp-S)/216LB (F-Sp-S) or 216IN (F-Sp-S), 221 (F-Sp-S)/221LB (F-Sp-S)

#### Critical Thinking Category

PHI 120 (F-Sp-S)



Humanities and Social Science Requirement ..... 3  
Select from the following course lists only.

**Humanities and Fine Arts Category**

ANT 112 (F-Sp-S), 148 (F-Sp), 205 (F-Sp), 206 (F-Sp), ART 130 (F-Sp-S), 131 (F-Sp-S), HIS 101 (F-Sp-S), 102 (F-Sp-S), 113 (F-Sp), 114 (F-Sp), 122 (Sp), 124 (F), 141 (F-Sp-S), 142 (F-Sp-S), 148 (F-Sp), 160 (F-Sp), 161 (F-Sp-S), 170 (n/o), HUM 251 (F-Sp-S), 252 (F-Sp), 253 (F-Sp-S), 260 (F-Sp-S), LIT 261 (F-Sp-S), 266 (F), 267 (F-Sp), REL 234 (F-Sp)

Any AGECE categorical requirement from the "Other Requirements Options:" (c) Second Language list that has a "G" designation.

**Subtotal** ..... 27

**Total credits as displayed** ..... 66§

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

‡ No longer offered, but will fulfill requirement.

## Paralegal (Legal Assistant) — Post-Degree Certificate for Direct Employment

Learn to develop and modify legal procedures, prepare and interpret legal documents, prepare a case for trial, investigate the facts of a case, analyze and handle procedural problems and use information from the law library and other resources. This program includes a paralegal internship. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

**Program Prerequisites:** Before you can enroll, you must have earned a bachelor's degree from an accredited institution.

### What can I do with this certificate?

**Career Options:** Paralegal or legal assistant, title examiner, trust officer, contract clerk, legal investigator or law firm administrator.

**Academic Options:** Continue your studies by taking additional professional development courses.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134

Lead Faculty: 206-7352

**Program Identification Code:** CRDLEGALASST

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

PAR 101	Introduction to Paralegal Careers (F-Sp)	3
PAR 102*	Civil Litigation Procedures I (F-Sp)	3
PAR 103*	Legal Research (F-Sp)	3
PAR 104*	Paralegal Ethics (F-Sp)	3
PAR 106*	Civil and Criminal Evidence (F-Sp)	3
PAR 202*	Civil Litigation Procedures II (F-Sp)	3
PAR 211*	Legal Writing (F-Sp)	3
PAR 213*	Computer Assisted Legal Research (F-Sp)	3

**Subtotal** ..... 24

#### PAR ELECT PAR Specialty Area Electives

Complete 15 credits from the following PAR specialty area electives course list:

(Specialty courses are not offered every semester. Consult with an PAR faculty advisor to determine class offerings.)

PAR 203*	Tort Law Procedures (F)	3
PAR 204*	Wills, Trusts, and Estates (F)	3
PAR 206*	Criminal Law and Procedures I (F)	3
PAR 207*	Criminal Law and Procedures II (Sp)	3
PAR 208*	Domestic Relations and Family Law (Sp)	3
PAR 209*	Bankruptcy Procedures (F)	3
PAR 210*	Administrative Law (n/o)	4
PAR 212*	Law Office Computerization (Sp)	3
PAR 215*	Corporate Law Procedures (Sp)	3
PAR 217*	Real Estate Procedures (F-Sp)	3
PAR 290*	Paralegal Internship (F-Sp)	4

(The internship is designed to give the students work experience at an approved site. For students in their final semester of course work. Application and acceptance required.)

**Subtotal** ..... 15

#### Required Support Course

WRT 101*	Writing I (F-Sp-S)	3
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**Subtotal** ..... 3

**Total credits as displayed** ..... 42

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.



# Pharmacy Technology

Learn how to assist pharmacists in packaging and distributing medications.

## Pharmacy Technology — Certificate for Direct Employment

Learn to work as a pharmacy technician assisting a pharmacist. This program includes training within laboratory and clinical settings. Complete this program in a combination of daytime and evening classes, or a combination of online and on-campus classes.

**Before you enroll**, you must meet the following requirements before starting this program:

- High school diploma or GED
- Meet the College's reading requirement
- Math assessment test at the level of MAT 122 or higher, or completion of MAT 092 with a grade of C or better

### What can I do with this certificate?

**Career Options:** Work in hospitals, nursing care facilities and drug stores and with drug manufacturers, wholesale drug houses and health maintenance organizations.

**Academic Options:** Continue taking classes toward earning a Pharmacy Technology AAS degree.

Locations: East Campus

Department/Contact Information: Division Dean: 206-7694  
Lead Faculty: 206-7850

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . .	3
See General Education Section, page 56	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education Section, page 56	
<b>Subtotal . . . . .</b>	<b>6</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

PHT 170	Introduction to Pharmacy Technology (F-Sp) . . .	2
PHT 171IN	Pharmaceutical Calculations (F-Sp) . . . . .	4
PHT 172*	Drug Therapy I (F-Sp) . . . . .	4
PHT 174/174LB*	Pharmacy Operations (F-Sp) . . . . .	3
PHT 178IN*	Pharmacy Microcomputers (F-Sp) . . . . .	3
PHT 180/180LB*	Sterile Products (F-Sp) . . . . .	4
PHT 181*	Interprofessional Relations in Pharmacy (Sp) . . .	3
PHT 182*	Drug Therapy II (Sp) . . . . .	4
PHT 190LB*	Pharmacy Technician Internship (Sp) . . . . .	4
PHT 197*	Clinical Seminar (Sp) . . . . .	2
<b>Subtotal . . . . .</b>		<b>33</b>
<b>Total credits as displayed . . . . .</b>		<b>39</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Pharmacy Technology — Associate of Applied Science Degree for Direct Employment

Learn to work in a pharmacy, including medication dispensing, business administration and supervisory skills. This program includes training within laboratory and clinical settings. Complete this program in a combination of daytime and evening classes, or a combination of online and on-campus classes.

**Before you can enroll**, you must meet the following requirements before starting this program:

- High school diploma or GED
- Meet the College's reading requirement
- Math assessment test at the level of MAT 122 or higher, or completion of MAT 092 with a grade of C or better

Students who have met these requirements should complete a Pharmacy Technology application which is available online.

### What can I do with this degree?

**Career Options:** Work in hospitals, nursing care facilities and drug stores and with drug manufacturers, wholesale drug houses and health maintenance organizations.

**Academic Options:** While this program is not designed for transfer to a 4-year university, some of the support courses are transferable.

Locations: East Campus

Department/Contact Information: Division Dean: 206-7694  
Lead Faculty: 206-7850

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . .	6
See General Education Section, page 56	
Analysis and Critical Thinking Requirement . . . . .	2
BIO 100IN or 181IN fulfill four credits of this requirement. See General Education Section, page 56	
Humanities and Social Science Requirement . . . . .	6
See General Education Section, page 57	
Computer and Information Literacy Requirement . . . . .	†
Core courses fulfill this requirement	
<b>Subtotal . . . . .</b>	<b>14</b>



## Physics

Explore the science of energy and motion by taking physics courses that focus on mechanics, electricity and magnetism, waves and heat, relativity to the basics of quantum physics. Students learn through lecture and hands-on lab experiences.

Physics courses are offered as part of the requirements of the **Associate of Science degree**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with physics faculty to plan their course of study using the appropriate transfer guide.

**Career options:** work as a technician in laboratories, with research and development firms, in the laser or optics industry, or in manufacturing.

**Academic options:** continue studies towards a bachelor of science in physics, astrophysics, optical sciences, engineering, or education.

Location: All Campuses

Department / Contact Information:

Division Deans: 206-5105 (Desert Vista)  
206-7694 (East)  
206-2264 (Northwest)  
206-6763 (West)  
206-6476 (Community)

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

PHT 170	Introduction to Pharmacy Technology (F-Sp) ...	2
PHT 171IN	Pharmaceutical Calculations (F-Sp) .....	4
PHT 172*	Drug Therapy I (F-Sp) .....	4
PHT 174/174LB*	Pharmacy Operations (F-Sp) .....	3
PHT 178IN*	Computer Application for Pharmacy (F-Sp) ....	3
PHT 180/180LB*	Sterile Products (F-Sp) .....	4
PHT 181*	Interprofessional Relations in Pharmacy (Sp) ...	3
PHT 182*	Drug Therapy II (Sp) .....	4
PHT 187*	Pharmacy Law and Ethics (F) .....	3
PHT 190LB*	Pharmacy Technician Internship (Sp) .....	4
PHT 197*	Clinical Seminar (Sp) .....	2
<b>Subtotal</b> .....		<b>36</b>

### Required Support Courses

BIO 100IN or BIO 181IN*	Biology Concepts (F-Sp-S) General Biology (Majors) I (F-Sp-S) ..	4
CHM 130/130LB/130IN or CHM 151/151LB/151IN*	Fundamental Chemistry (F-Sp-S) General Chemistry I (F-Sp-S) .....	5
CHM 140/140LB/IN* or CHM 152/152LB/152IN*	Fundamental Organic and Biochemistry (F-Sp) General Chemistry II (F-Sp-S) .....	5
<b>Subtotal</b> .....		<b>14</b>
<b>Total credits as displayed</b> .....		<b>64§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Political Science

### Associate of Arts Degree for Transfer

The political science program is designed to prepare students for transfer to a political science program at a four-year institution. Following a four-year degree students may also pursue graduate degrees in law, international business communications, political science, public administration, and management. Although it is not intended for direct employment, the political science **Associate of Arts in Liberal Arts Degree for Transfer** may be recognized by some employers for entry level positions.

**Program Identification Code:** AOAPOLITLSCI

#### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition	6
See General Education Section, page 57	
Humanities and Fine Arts	6-9
See General Education Section, page 57	
Biological and Physical Sciences	8
See General Education Section, page 57	
Mathematics	3
See General Education Section, page 57	
Social and Behavioral Sciences	3
POS 100 and 201 fulfill 6 credits of this requirement.**	
See General Education Section, page 57	
Other Requirements	0-3
Second language courses may fulfill this requirement.	
Special Requirements	
POS 201 fulfills the C requirements. POS 202 fulfills the G requirement. The I requirement must be fulfilled by a course in the above categories.	
<b>Subtotal</b>	<b>26-29†</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
POS 100	Introduction to Politics (F-Sp-S)	3
POS 201	American National Government and Politics (F-Sp-S)	3
POS 202	Introduction to International Relations (F-Sp)	3
POS 203	Introduction to Political Ideas (F)	3
POS 204	Introduction to Comparative Politics (F-Sp)	3
<b>Subtotal</b>		<b>15</b>

### Required Support Courses

Second Language Requirement	4-16
Completion of a language course numbered 202*, fourth-semester level, or completion of SPA 204* or SLG 202*. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.	
Electives	0-16
Complete 0-16 transferable credits from the Political Science transfer guide, prerequisite courses for your major or AGECEC general education courses, or any transferable courses.	
<b>Subtotal</b>	<b>16-19</b>
<b>Total credits as displayed</b>	<b>60-64§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Take one more course in a different subject area than POS from the list on this category.

† AGECEC requires 35 credits. This subtotal shows the AGECEC credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Pre-Agriculture

Students interested in the area of Agriculture should follow the **Associate of Arts in Liberal Arts Degree for Transfer** and consult the catalog of the school to which they plan to apply. Students should also see the pre-agriculture advisor or counselor at the school they plan to attend.

**Program Identification Code:** AOALIBRALART

## Pre-Dentistry

Students interested in the area of Dentistry should follow the **Associate of Science Degree for Transfer** and consult the catalog of the school to which they plan to apply. Students should also see the pre-dentistry advisor or counselor at the school they plan to attend.

**Program Identification Code:** AOSSCIENCE

## Pre-Law

Students interested in the area of Law should follow the **Associate of Arts in Liberal Arts Degree for Transfer** and consult the catalog of the school to which they plan to apply. Students should also see the pre-law advisor or counselor at the school they plan to attend.

**Program Identification Code:** AOALIBRALART

## Pre-Medicine

Students interested in the area of Medicine should follow the **Associate of Science Degree for Transfer** and consult the catalog of the school to which they plan to apply. Students should also see the pre-medicine advisor or counselor at the school they plan to attend.

**Program Identification Code:** AOSSCIENCE

## Pre-Pharmacy

Students interested in the area of Pharmacy should follow the **Associate of Arts in Liberal Arts Degree for Transfer** and consult the catalog of the school to which they plan to apply. Students should also see the pre-pharmacy advisor or counselor at the school they plan to attend.

**Program Identification Code:** AOALIBRALART

## Pre-Veterinary

Students interested in the area of Veterinary Medicine should follow the **Associate of Science Degree for Transfer** and consult the catalog of the school to which they plan to apply. Students should also see the pre-medical advisor or counselor at the school they plan to attend.

**Program Identification Code:** AOSSCIENCE

## Psychology

### Psychology Concentration — Emphasis for Transfer ‡

Students planning to transfer to a university to major in psychology should complete this psychology concentration as part of completing the **Associate of Arts in Liberal Arts Degree for Transfer**, including an **AGEC-A**. Students should meet with a Psychology faculty member, an advisor, or a counselor to plan their course of study using the appropriate transfer guide.

Please note that one or two of the Psychology concentration courses below may also fulfill AGECE-A general education requirements of the Associate of Arts in Liberal Arts. See an advisor or counselor.

**Use Program Identification Code for Liberal Arts:**  
AOALIBRALART

**Concentration Code:** ALAP

**Psychology Concentration:** 14-16 credits:

Course Number	Course Title	Credit Hours
<b>Required Core Courses —</b>		
<b>A grade of C or better is required for graduation.</b>		
PSY 101 or PSY 100A and PSY 100B	Introduction to Psychology (F-Sp-S) Psychology I (F-Sp) Psychology II (F-Sp)	4 6
PSY 230*	Psychological Measurements and Statistics (F-Sp-S)	3
PSY 289*	Research Methods (F-Sp)	4
<b>Subtotal</b>		<b>11-13</b>

Select one additional course from the list below.

PSY 132	Psychology and Culture (F)	3
PSY 200	Industrial, Organizational, and Business Psychology (F)	3
PSY 210*	Introduction To Biopsychology (n/o)	3
PSY 214*	Abnormal Psychology (F-Sp-S)	3
PSY 215	Human Sexuality (F-Sp-S)	3
PSY 216*	Psychology Of Gender (F-Sp-S)	3
PSY 218*	Health Psychology (F-Sp)	3
PSY 220*	Psych Of Death & Loss (F)	3
PSY 250*	Intro To Social Psych (F-Sp)	3
PSY 265*	Normal Personality (F-Sp)	3
PSY 271*	Sport Psychology (Sp)	3
PSY 273*	Psychology of Excellence (n/o)	3
<b>Subtotal</b>		<b>3</b>
<b>Total credits as displayed</b>		<b>14-16*</b>

‡ To be awarded this concentration you must complete the course requirements above and the Associate of Arts in Liberal Arts with an AGECE-A.

\* This course has a prerequisite, co-requisite or recommendation. See course description section.



## Public Administration

See Business Administration Degree

## Public Safety and Emergency Services Institute

The purpose of the Public Safety and Emergency Services Institute is to provide training and educational opportunities and resources to several career areas including Administration of Justice, Law Enforcement, Emergency Medical Technician, Fire Science and Public Safety Communications. We offer convenient, flexible and immediately useful programs to professionals who seek advancement in their careers as well as courses for the general public. In addition, the Law Enforcement Associate of Applied Science Degree is designed to transfer to NAU's Bachelor of Applied Science Degree in Justice Systems and Policy Planning, and the Fire Science Associate of Applied Science Degree to ASU's East Campus, Bachelor of Applied Science Degree in Fire Service Management. Both ASU (East Campus) and NAU's programs are offered in Tucson.

Educational opportunities at the Institute reflect contemporary issues, current techniques and technology used in public safety and emergency services. Our programs and services focus on the safety and well being of Southern Arizona and the greater community.

The training and education we offer can give your employees new and improved skills, insight and understanding, and opportunities to learn how to meet a changing agency's environment. We also provide all the academic support services they need: academic advising, computer labs, and information resources.

When your commissioned and non-commissioned employees enroll in courses which are a part of the Institute, your agency gains professionals who have a greater range of skills, and who have the education to meet the expanding role of your agency. The Institute provides a source for management education and leadership development plus targeted opportunities for professional development.

Our partnerships with public safety agencies are based on mutual respect, mutual trust and mutual benefit. We work together to make effective use of the talent, facilities and resources possessed by each partner.

See the following programs: Administration of Justice, Emergency Medical Technology, Fire Science, Corrections, Law Enforcement, and Juvenile Corrections in the Other Educational Programs chapter.

### Public Safety and Emergency Services Institute

Community Campus  
401 North Bonita Ave.  
Tucson, AZ 85709-5520  
(520) 206-6350  
Fax: (520) 206-6311

## Radiologic Technology

Become a technologist in the field of diagnostic medical imaging.

### Radiologic Technology — Associate of Applied Science Degree for Direct Employment

Learn diagnostic medical imaging, including how to operate equipment. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

**Before enrolling**, you must complete certain requirements:

This degree program requires a special program application. Students may request a program application when all prerequisites are complete.

Students must have completed the following basic requirements before they may begin the application process.

- Reading assessment score of 90, or completion of REA 112
- Math assessment at the level of MAT 151 or higher, or complete MAT 122 with at least a C grade.
- Completion of BIO 201IN and BIO 202IN within the last eight years with at least a C grade in both courses and a combined average of B or better.
- Complete the Radiologic Technology application.

To participate in the clinical portion of the program, the students must:

1. Obtain an Arizona DPS Fingerprint Clearance Card.
2. Pass a urine toxicology screening exam for various health care agencies.
3. Be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. The radiologic technology experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients' lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

### What can I do with this degree?

**Career Options:** Take the medical radiography exam by the American Registry of Radiologic Technologists and qualify to work in hospitals, clinics and doctors' offices.

**Academic Options:** Continue taking courses to earn a Magnetic Resonance Imaging (MRI) Post-degree Certificate.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783  
Lead Faculty: 206-3104

**General Education Requirements -****A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 and WRT 102 fulfill this requirement.

Analysis and Critical Thinking Requirement ..... †  
Program prerequisites fulfill this requirement.

Humanities and Social Science Requirement ..... 3  
PSY 101 fulfills part of this requirement. See General Education section, page 56

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

**Subtotal** ..... **4-6**

Course Number	Course Title	Credit Hours
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**Required Core Courses -****A grade of C or better is required for graduation.**

RAD 170/170LB*	Medical Imaging Fundamentals (S)	3
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RAD 171/171LB*	Radiographic Positioning I (F)	4.5
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RAD 172/172LB*	Medical Imaging Technology I (F)	3.5
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RAD 173LC*	Clinical Education I (F)	6
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RAD 174/174LB*	Radiographic Positioning II (Sp)	4.5
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RAD 175/175LB*	Medical Imaging Technology II (Sp)	3.5
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RAD 176LC*	Clinical Education II (Sp)	6
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RAD 177LC*	Clinical Education III (Sp)	7
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RAD 181/181LB*	Radiographic Positioning III (F)	4.5
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RAD 182/182LB*	Medical Imaging Technology III (F)	3.5
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RAD 183LC*	Clinical Education IV (F)	6
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RAD 184/184LB*	Radiographic Positioning IV (Sp)	4
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RAD 185*	Clinical Seminar (Sp)	1
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RAD 186LC*	Clinical Education V (Sp)	6
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<b>Subtotal</b>		<b>63</b>
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**Required Support Courses -****A grade of C or better is required for graduation.**

PSY 101*	Introduction to Psychology (F-Sp-S)	4
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WRT 101*	Writing I (F-Sp-S)	3
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WRT 102*	Writing II (F-Sp-S)	3
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<b>Subtotal</b>		<b>10</b>
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<b>Total credits as displayed</b>		<b>77-79§</b>
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\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credit hours.

## Radiologic Technology - Magnetic Resonance Imaging — Certificate for Direct Employment

This advanced specialty program trains registered technologists in the use of MRI equipment. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

**Program Prerequisites:** Before you can enroll, you must complete the Radiologic Technology AAS program or an equivalent program.

**What can I do with this certificate?**

**Career Options:** Enhance your radiologic technician skills and find employment working with MRI equipment in hospitals, clinics and other service providers. Take the exam to become certified in MRI by the American Registry of Radiologic Technologists.

**Academic Options:** Take additional professional development courses in this field.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783  
Lead Faculty: 206-3104

Course Number	Course Title	Credit Hours
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**Required Core Courses -****A grade of C or better is required for graduation.**

MRI 210*	Introduction to Magnetic Resonance Imaging (F)	1
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MRI 212*	Physical Principles of Magnetic Resonance Imaging (F)	1
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MRI 214*	Sectional Anatomy of the Human Body (F)	1
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MRI 216LB*	MRI Clinical Education I (F)	4
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MRI 220*	Imaging Procedures (Sp)	1
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MRI 222*	MRI Pathology Detection (Sp)	1
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MRI 224*	ARRT Exam Preparation and MRI Physics Review (Sp)	1
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MRI 226LB*	MRI Clinical Education II (Sp)	4
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<b>Total credits as displayed</b>		<b>14</b>
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\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Real Estate Sales/Brokerage

Pima Community College offers courses in Real Estate/Brokerage. See the course section of the catalog.

Students seeking to transfer to a university and major in Real Estate should see an advisor, follow the university transfer guide, and complete the **Associate of Business Administration (ABUS)** degree.

**Program Identification Code:** AOBBUSIADMIN

# Respiratory Therapist Program

## Respiratory Care — Associate of Applied Science Degree for Direct Employment

Develop skills through classroom and clinical experience to become a respiratory therapist. This program is approved by the Council on Accreditation of Allied Health Programs.

**Before enrolling**, you must complete certain requirements. This program requires a special program application. Students may request a program application when all prerequisites are complete.

- Reading assessment test score of 90 or completion of REA 112
- Math assessment at the level of MAT 151 or higher or complete MAT 122 with at least a grade of C
- WRT 101 with a grade of C or better
- BIO 160IN with a grade of C or better
- CHM 130/130LB/130IN with a grade of C or better, or Chemistry assessment score of 19 or higher
- Completion of the Respiratory Therapy application

Once these requirements are complete:

Request an application to the Respiratory Care - AAS program.

To participate in the clinical portion of the program, the students must:

- 1 Obtain an Arizona DPS Fingerprint Clearance Card.
- 2 Pass a urine toxicology screening exam for various health care agencies.
- 3 Be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will be required to lift patients, stand for several hours at a time and perform bending activities. The respiratory care experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting patients' lives. Students must be able to demonstrate rational and appropriate behavior under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

### What can I do with this degree?

**Career Options:** Apply to take the exam given by the National Board of Respiratory Care to become a certified respiratory therapist. This degree also qualifies graduates to take the registered respiratory therapist exam. Become licensed in Arizona. Work in hospitals, special-care facilities and other settings taking care of cardiopulmonary patients.

**Academic Options:** While this degree is not intended for transfer to a 4-year university, many of the courses are transferable.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6783  
Lead Faculty: 206-3107

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 and WRT 102 fulfill this requirement

Analysis and Critical Thinking Requirement ..... †  
MAT 122 and BIO 205IN fulfill this requirement

Humanities and Social Science Requirement ..... 3  
PSY 101 fulfills part of this requirement  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
Core courses fulfill this requirement

**Subtotal** ..... 3

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

RTH 110*	Introduction to Respiratory Care (F)	4
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RTH 112*	Respiratory Physiology (F)	4
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RTH 121/121LB*	Basic Therapeutics in Respiratory Care (F)	5
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RTH 123/123LB*	Basic Assessment and Monitoring (Sp)	4
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RTH 124*	Pharmacology for Respiratory Care (Sp)	3
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RTH 125*LB	Clinical Procedures I (Sp)	1
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RTH 135*LB	Clinical Procedures II (S)	4
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RTH 162*	Principles of Mechanical Ventilation (Sp)	2
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RTH 241/241LB*	Critical Care Therapeutics (F)	3
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RTH 243/243LB*	Advanced Assessment and Monitoring (F)	4
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RTH 245LC*	Clinical Procedures III (F)	4
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RTH 246*	Cardiorespiratory Disorders I (F)	3
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RTH 251*	Specialty Therapeutics (Sp)	4
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RTH 255LC*	Clinical Procedures IV (Sp)	4
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RTH 256*	Cardiorespiratory Disorders II (Sp)	3
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RTH 257LB*	Clinical Applications and Professional Development (Sp)	1
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**Subtotal** ..... 53

### Support Courses

BIO 205IN*	Microbiology (F-Sp-S)	4
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WRT 102*	Writing II (F-Sp-S)	3
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PSY 101	Introduction to Psychology (F-Sp-S)	4
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**Subtotal** ..... 11

**Total credits as displayed** ..... 67§

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Social Services

Gain knowledge and skills for employment in social service organizations that provide community services including service delivery, community outreach and intervention.

## Social Services — Associate of Applied Science Degree for Direct Employment

Learn core principles and skills in social work, community services and casework management. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment in social service positions.

**Academic Options:** Students intending to transfer to a four-year university should pursue the Social Services Associate of Arts degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996  
Lead Faculty: 206-6705

**Program Identification Code:** AASSOCIALSRV

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . 6  
See General Education Section, page 56

Humanities and Social Science Requirement . . . . . 3  
SSE 110 fulfills part of this requirement; complete an additional 3 credits from the Humanities category that meet the "C" or "G" requirement, see General Education Section, page 56

Computer and Information Literacy Requirement . . . . . 1-3  
See General Education Section, page 56

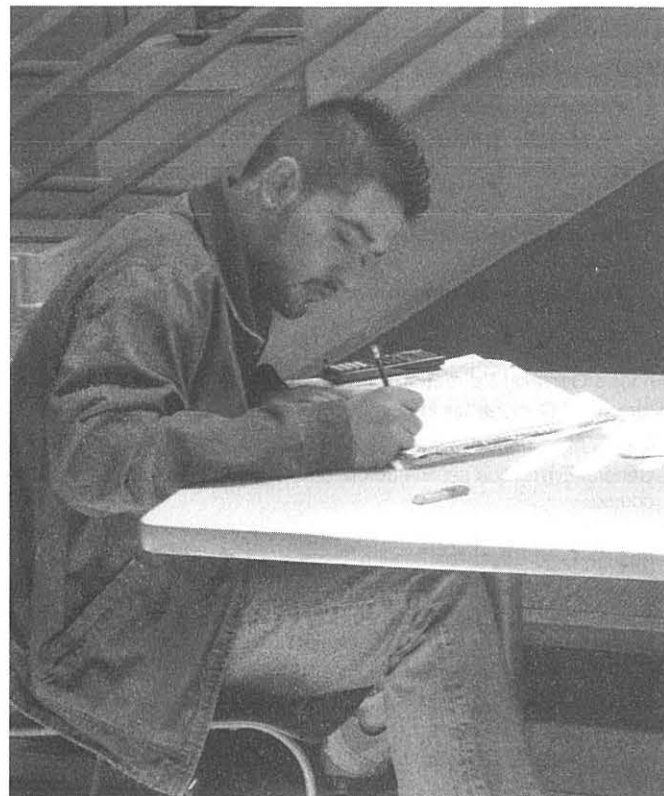
**Subtotal . . . . . 16-18**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

SSE 110	Introduction to Social Welfare (F-Sp)	3
SSE 111	Group Work (F-Sp)	3
SSE 202	Casework Methods I (F-Sp)	3
SSE 210*	Community Organization and Development (F-Sp)	3
SSE 211*	Group Technique Applications (F-Sp)	3
SSE 212*	Casework Methods II (F-Sp)	3
SSE 292*	Social Services Field Experience (F-Sp)	4
<b>Subtotal</b>		<b>22</b>



### Required Support Courses

SSE Electives:

May be fulfilled by taking an SSE course which is not listed as a core course. . . . . 3

Electives . . . . . 19-21  
Please see an advisor to select appropriate course work.

**Subtotal . . . . . 22 - 24**

**Total credits as displayed . . . . . 60-64§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Social Services — Associate of Arts Degree for Transfer

Prepare to transfer to a university to complete a degree in social work. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment in service positions

**Academic Options:** Transfer to a university program majoring in social work or other social service professions.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996

Lead Faculty: 206-6030

**Program Identification Code:** AOASOCIALSRV

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 3  
PHI 101 or 130 fulfills three credits of this requirement. Complete an Art List course. See General Education Section, page 57

Biological and Physical Sciences ..... 4  
BIO 156IN or 160IN fulfill 4 credits of this requirement.

Mathematics ..... †  
The MAT course required in the support courses fulfills this requirement

Social and Behavioral Sciences ..... 0  
SSE 110 and ECN 202, and either PSY 101 or SOC 101 fulfill this requirement

Other Requirements ..... 3  
See General Education Section, page 57

Special Requirements  
See General Education Section, page 57 to fulfill the I, C and G requirements

**Subtotal ..... 16 ¥**

### Course Number Course Title Credit Hours

#### Required Core Courses -

**A grade of C or better is required for graduation.**

SSE 110	Introduction to Social Welfare (F-Sp)	3
SSE 111	Group Work (F-Sp)	3
SSE 202	Casework Methods I (F-Sp)	3
SSE 210*	Community Organization and Development (F-Sp)	3
SSE 211*	Group Technique Applications (F-Sp)	3
SSE 212*	Casework Methods II (F-Sp)	3
SSE Electives		3
<b>Subtotal</b>		<b>21</b>

### Required Support Courses

BIO 156IN	Human Biology for Allied Health (F-Sp-S)	
or BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-S)	4
ECN 202*	Macroeconomic Principles (F-Sp-S)	3
MAT 142 *	Topics in College Mathematics (F-Sp-S)	
or MAT 151*	College Algebra (F-Sp-S)	
or any MAT Course numbered 151 or above		3 - 4
PHI 101	Introduction to Philosophy (F-Sp-S)	
or PHI 130	Introductory Studies in Ethics and Social Philosophy (F-Sp-S)	3
PSY 101	Introduction to Psychology (F-Sp-S)	
or SOC 101	Introduction to Sociology (F-Sp-S)	3
Transferable Electives		6 - 11

See your advisor to select 6 to 11 credits of transferable electives so the program total is 60 to 64 credits. Be sure to complete the AGECE Special Requirements: I, C, and G.

Language requirement: 4th semester proficiency in a language is required by ASU. This proficiency may be demonstrated through completion of a language course numbered 202 or via assessment at ASU. If the student completes credit courses to reach fourth-semester proficiency while at PCC, the requirement will be fulfilled but the credits may not transfer.

**Subtotal ..... 23-27**

**Total credits as displayed ..... 60-64§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Support or core course(s) fulfill this requirement.

¥ AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Social Services Substance Abuse Specialty — Associate of Applied Science Degree for Direct Employment

Learn principles and skills in social work with an emphasis on drug and alcohol treatment and prevention. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this degree?

**Career Options:** Entry-level employment in positions providing substance abuse services and related community outreach.

**Academic Options:** Students intending to transfer to a four-year university should pursue the Social Services AA degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996

Lead Faculty: 206-6705

**Program Identification Code:** AASSUBSTABUS

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 6  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 3  
SSE 110 fulfills part of this requirement; complete an additional 3 credits from the Humanities and Arts or the Leadership and Ethics category which fulfills the "c" or "g" requirement. See General Education section, page 56

Computer and Information Literacy Requirement ..... 1-3  
See General Education Section, page 56

**Subtotal ..... 16-18**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

SSE 110	Introduction to Social Welfare (F-Sp)	3
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SSE 111	Group Work (F-Sp)	3
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SSE 121	Study of Substance Abuse (F)	3
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SSE 123	Substance Abuse Prevention (Sp)	3
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SSE 202	Casework Methods I (F-Sp)	3
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SSE 210*	Community Organization and Development (F-Sp)	3
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SSE 211*	Group Technique Applications (F-Sp)	3
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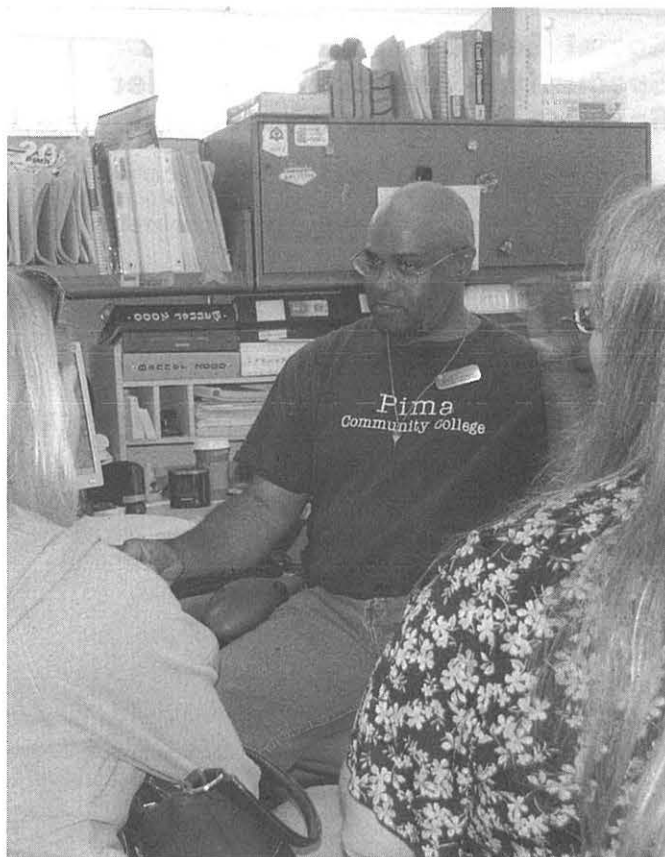
SSE 212*	Casework Methods II (F-Sp)	3
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SSE 220*	Treatment of the Substance Abuser (Sp)	3
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SSE 222*	Political and Legal Aspects of Drug Use (Sp)	3
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SSE 292*	Social Services Field Experience (F-Sp)	4
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**Subtotal ..... 34**



### Required Support Courses

Electives ..... 10 - 12

Please see an advisor to select appropriate course work.

**Total credits as displayed ..... 60-64§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Social Services Substance Abuse Specialty — For Transfer

See the Social Services Associate of Arts Degree for Transfer.

**Use Program Identification Code:** AOASOCIALSRV

## Social Services Youth Services Specialty — Associate of Applied Science Degree for Direct Employment

Learn principles and skills in social work with an emphasis on crisis intervention and community services for children. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment in youth services agencies.

**Academic Options:** Students intending to transfer to a four-year university should pursue the Social Services AA degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996

Lead Faculty: 206-6705

**Program Identification Code:** AASYOUTHSERV

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . 6  
See General Education Section, page 56

Humanities and Social Science Requirement . . . . . 3  
SSE 110 fulfills part of this requirement; complete an additional 3 credits from the Humanities and Arts or the Leadership and Ethics category which fulfills the "c" or "g" requirement. See General Education section, page 56

Computer and Information Literacy Requirement . . . . . 1-3  
See General Education Section, page 56

**Subtotal . . . . . 16-18**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

AJS 212 Juvenile Justice Procedures (F-Sp). . . . . 3

ECE 117\* Child Growth and Development (F-Sp-S) . . . . . 3

SSE 110 Introduction to Social Welfare (F-Sp) . . . . . 3

SSE 111 Group Work (F-Sp). . . . . 3

SSE 146 Child Abuse Intervention and Protection (F-Sp) . . . . . 3

SSE 160 Introduction to Youth Services (F) . . . . . 3

SSE 202 Casework Methods I (F-Sp). . . . . 3

SSE 210\* Community Organization and Development (F-Sp) . 3

SSE 211\* Group Technique Applications (F-Sp). . . . . 3

SSE 260\* Youth Services: Policy, Practice and Prevention (Sp) . . . . . 3

SSE 290\* Field Experience Youth Services (F-Sp) . . . . . 4

**Subtotal . . . . . 34**



### Required Support Courses

Electives . . . . . 10-12

Please see an advisor to select appropriate course work.

**Total credits as displayed . . . . . 60-64§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Social Services Youth Services Specialty — For Transfer

See the Social Services Associate of Arts Degree for Transfer.

**Use Program Identification Code:** AOASOCIALSRV

## Basic Social Services Certificate

Gain skills and knowledge in dealing with social welfare, service agencies and community groups and the needs of individual clients. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of daytime, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Enhance employment and promotion opportunities in industry, business and human services.

**Academic Options:** Pursue other Social Services certificates or a Social Services degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996  
Lead Faculty: 206-6705

**Program Identification Code:** CRTSOCIALSRV

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

SSE 110	Introduction to Social Welfare (F-Sp)	3
SSE 111	Group Work (F-Sp)	3
SSE 202	Casework Methods I (F-Sp)	3
SSE 210*	Community Organization and Development (F-Sp)	3
SSE 211*	Group Technique Applications (F-Sp)	3
SSE 212*	Casework Methods II (F-Sp)	3

**Total credits as displayed** ..... 18

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Basic Social Services Substance Abuse Certificate for Direct Employment

Understand drug and alcohol abuse and treatment methods. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Seek employment or promotion in agencies that provide substance abuse intervention.

**Academic Options:** Pursue other Social Services certificates or a Social Services degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996  
Lead Faculty: 206-6705

**Program Identification Code:** CRTSUBSTABUS

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

SSE 110	Introduction to Social Welfare (F-Sp)	3
SSE 121	Study of Substance Abuse (F)	3
SSE 123	Substance Abuse Prevention (Sp)	3
SSE 202	Casework Methods I (F-Sp)	3
SSE 220*	Treatment of the Substance Abuser (Sp)	3
SSE 222*	Political and Legal Aspects of Drug Use (Sp)	3

**Total credits as displayed** ..... 18

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Basic Social Services Domestic Violence Intervention Certificate for Direct Employment

Understand the dynamics of domestic violence including crisis intervention and treatment methods. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Seek employment or promotion in agencies providing domestic violence intervention.

**Academic Options:** Pursue other Social Services certificates or a Social Services degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996  
Lead Faculty: 206-6705

**Program Identification Code:** CRTDOMESVIOL

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
SOC 127	Marriage and the Family (F-Sp-S) . . . . .	3
SSE 110	Introduction to Social Welfare (F-Sp) . . . . .	3
SSE 140	Domestic Violence: Causes and Cures (F) . . . . .	3
SSE 146	Child Abuse Intervention and Protection (F-Sp) . . . . .	3
SSE 202	Casework Methods I (F-Sp) . . . . .	3
SSE 242*	Crisis Intervention, Theory and Techniques (F) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>18</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Social Services Community Health Advisor — Certificate for Direct Employment

Learn how to promote health in a community context and provide direct services to clients. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

**Career Options:** Seek employment or promotion in health agencies and disease prevention education services.

**Academic Options:** Pursue other Social Services certificates or a Social Services degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996  
Lead Faculty: 206-6705

**Program Identification Code:** CRTHEALTHADV

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
HED 140	First Aid and Cardiopulmonary Resuscitation (F-Sp-S) . . . . .	1
SSE 110	Introduction to Social Welfare (F-Sp) . . . . .	3
SSE 170	Community Health Advising (F) . . . . .	3
SSE 293*	Community Health Advising Field Experience (Sp) . . . . .	6
<b>Subtotal . . . . .</b>		<b>13</b>
Communication		
One Writing, Computer, Speech, or Language course		
100 level or higher . . . . .		3
<b>Total credits as displayed . . . . .</b>		<b>16</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Developmental Disabilities Rehabilitation Certificate for Direct Employment

Learn to assist individuals with developmental disabilities by using rehabilitation techniques, social services skills and assistive technology devices. Complete this program by taking classes exclusively on evenings/weekends, or in a combination of day and evening classes.

### What can I do with this certificate?

Career Options: Employment providing services to individuals with developmental disabilities.

Academic Options: Pursue other Social Services certificates or a Social Services degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6996

Lead Faculty: 206-6705

Program Identification Code: CRTREHABSVS

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

EDU 261	Introduction to Rehabilitation Services (F-Sp-S) . . . .	3
EDU 262*	Assistive Technology for Individuals with Disabilities (n/o) . . . . .	3
SSE 110	Introduction to Social Welfare (F-Sp) . . . . .	3
SSE 111	Group Work (F-Sp). . . . .	3
SSE 202	Casework Methods I (F-Sp). . . . .	3
SSE 294	Disability Rehabilitation Services Field Experience (n/o) . . . . .	3
<b>Subtotal . . . . .</b>		<b>18</b>
<b>Total credits as displayed . . . . .</b>		<b>18</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



# Sociology

## Sociology — Associate of Arts Degree for Transfer

Complete general education requirements to transfer to a college or university while learning the principles of sociology. Students interested in social services should complete a degree or certificate in that discipline. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Apply for entry-level position in a social agency or non-profit organization.

**Academic Options:** Transfer to a 4-year university to complete a sociology degree.

Locations: All campuses

Department/Contact Information: Lead Faculty: 206-6030

**Program Identification Code:** AOASOCIOLOGY

### Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition ..... 6  
See General Education Section, page 57

Humanities and Fine Arts ..... 6  
See General Education Section, page 57

Biological and Physical Sciences ..... 8  
See General Education Section, page 57

Mathematics ..... 3  
See General Education Section, page 57

Social and Behavioral Sciences ..... 3

SOC 101 and 201 or 204 fulfill 6 credits of this requirement. Complete a non-SOC course from the General Education section, see General Education Section, page 57

Other Requirements ..... 0  
SOC 120 fulfills this requirement.

Special Requirements  
SOC 120 fulfills the C and G requirements. The I requirement may be fulfilled by selecting SOC 203 as elective or by completing other general education courses that fulfill the I requirement.

**Subtotal..... 26\***

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

SOC 101	Introduction to Sociology (F-Sp-S)	3
SOC 120*	Current Social Problems (F-Sp)	3
SOC 127	Marriage and the Family (F-Sp-S)	3
SOC 201	Race, Ethnicity, Minority Groups and Social Justice (F-Sp-S)	3
SOC 204	Gender Identities, Interactions and Relations (F-Sp-S)	3

**Subtotal..... 15**

Sociology Electives ..... 3

Select three credits from the following courses:

SOC 110*	Introduction to Cities and Global Society (F-Sp)	3
SOC 130	Social World of Drugs (F-Sp)	3
SOC 166*	Social Gerontology (n/o)	3
SOC 203	Sociology of Utopia (Sp)	3
SOC 215	Human Sexuality (F-Sp-S)	3
SOC 273	Sociology of Sport (n/o)	3
SOC 280	Sociology of Education (n/o)	3
SOC 289*	Topics in Community Involvement (F-Sp)	1-6
SOC 296*	Individual Studies in Sociology (n/o)	1-6

**Subtotal..... 3**

### Required Support Courses

Second Language Requirement ..... 16

Completion of a language course numbered 202\* fourth semester level, or completion of SPA 202\* or SLG 202\* (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum Associate degree requirement of 60 credit hours.

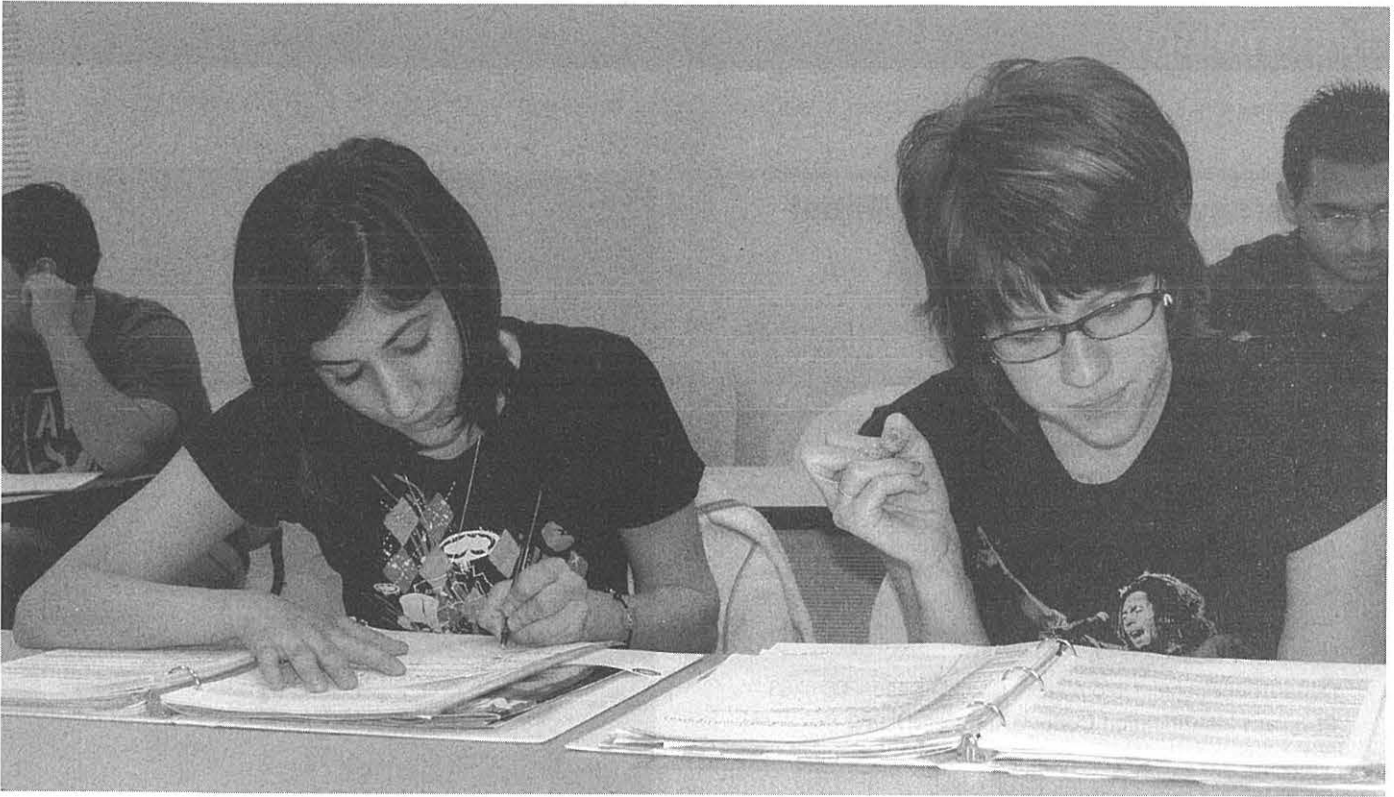
**Subtotal..... 16**

**Total credits as displayed ..... 60§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

¥ The AGECE requires 35 credits. This subtotal shows the AGECE credits not fulfilled by core, support, or second language courses.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Spanish

A student planning on obtaining a degree with an option in Spanish should follow the **Associate of Arts in Liberal Arts Degree for Transfer**.

See an advisor or counselor and complete a program of study form using the Transfer Guide.

**Program Identification Code:** AOALIBRALART

## Speech Communication

### Speech Communication — Emphasis for Transfer

The Speech Communication area offers courses which help prepare students for careers requiring extensive interaction with the public: advertising, business, counseling, education, healthcare, international relations, law, politics, public relations, sales, social services, technology, and theology. This course of study develops and improves skills in public address, interpersonal communication, and group communication for social and career settings. Through the **Associate of Arts in Liberal Arts Degree for Transfer** students can transfer to a four year institution.

**Use Program Identification Code:** AOALIBRALART

A student planning on obtaining a degree with a major in Speech Communication and transferring to ASU, NAU or UA should:

Complete the following Speech Communication courses:

SPE 102	Introduction to Speech Communication (F-Sp-S)
SPE 110	Public Speaking (F-Sp-S)
SPE 120	Business and Professional Communication (F-Sp-S)
SPE 124	Argumentation (F)

Complete the Associate of Arts in Liberal Arts Degree for Transfer:

Use the Associate of Arts in Liberal Arts Degree for Transfer display in this catalog as a guide. Specifically:

Complete two of the following three courses. ANT 102, JRN 102, PSY 250 to complete the Social and Behavioral Science General Education requirement

Complete the Second Language Requirement: Completion of a Language course numbered 202, or completion of SPA 202 or SLG 202

Complete the Arizona General Education Curriculum (AGEC-A)  
See a Speech Communication advisor/counselor to complete a program of study form using the Transfer Guide for ASU, NAU or UA. Students transferring to other institutions should consult the specific requirements of the institution to which they plan to attend.



# Technology

Prepare for careers in high-tech industries with courses in electronics, optics, automated systems, and computer information systems.

## Technology — Certificate for Direct Employment

Get an overview of the areas of technology, including optics, electronics and computers. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment in electronic, automated, information and optical systems.

**Academic Options:** All required core courses apply toward Associate of Applied Science degrees in Automated Systems Technology, Electronics Systems Technology or Information Technology Specialist.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** CRTTECHNOLGY

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . †  
WRT 154 fulfills this requirement.

Analysis and Critical Thinking Requirement . . . . . †  
TEC 113 fulfills this requirement.

**Subtotal . . . . . 0**

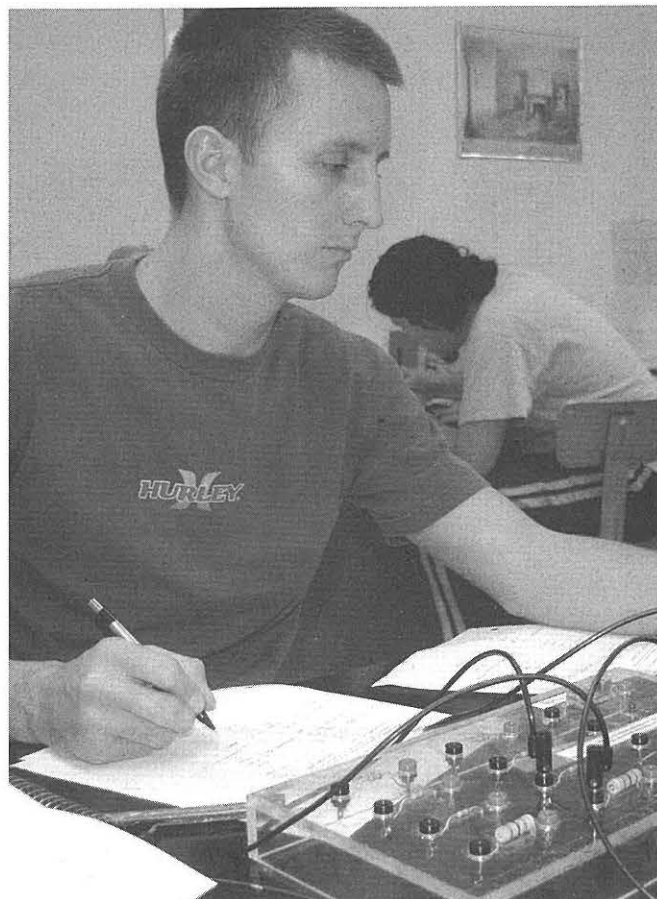
Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

TEC 101*	Physics for Technology (Sp)	3
TEC 103*	Light and Optical Systems (Sp)	2
TEC 121/121LB*	Basic Electric and Magnetic Properties (F)	4
TEC 122/122LB*	Applied Semiconductor Devices (Sp)	4
TEC 123/123LB*	Digital Circuits and Computers (F)	4
TEC 125/125LB*	AC Networks with Phasors (Sp)	4
TEC 126*	Electronics Construction and Assembly (F)	3
TEC 171*	Statistical Process Control and Experimentation (Sp)	3

**Subtotal . . . . . 27**



### Required Support Courses

WRT 154*	Career Communications (F-Sp)	3
TEC 113*	Problem Solving for Electronics and Optics (F)	3
TEC 160*	Microcomputers and Programming Techniques (F)	3

**Subtotal . . . . . 9**

**Total credits as displayed . . . . . 36**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

## Automated Systems Technology — Associate of Applied Science Degree for Direct Employment

Prepare for employment in microchip fabrication, fluidic devices, optics, and industries with automated systems. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment in microchip production and in highly automated industries.

**Academic Options:** Transfer to a Bachelor's of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** AASTECSEMCON

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . †  
TEC 101 and TEC 113 fulfill this requirement.

Humanities and Social Science Requirement . . . . . 6  
See General Education Section, page 56

Computer and Information Literacy Requirement . . . . . †  
Core or support course fulfills this requirement.

**Subtotal . . . . . 12**

*continued next page*

Course Number	Course Title	Credit Hours
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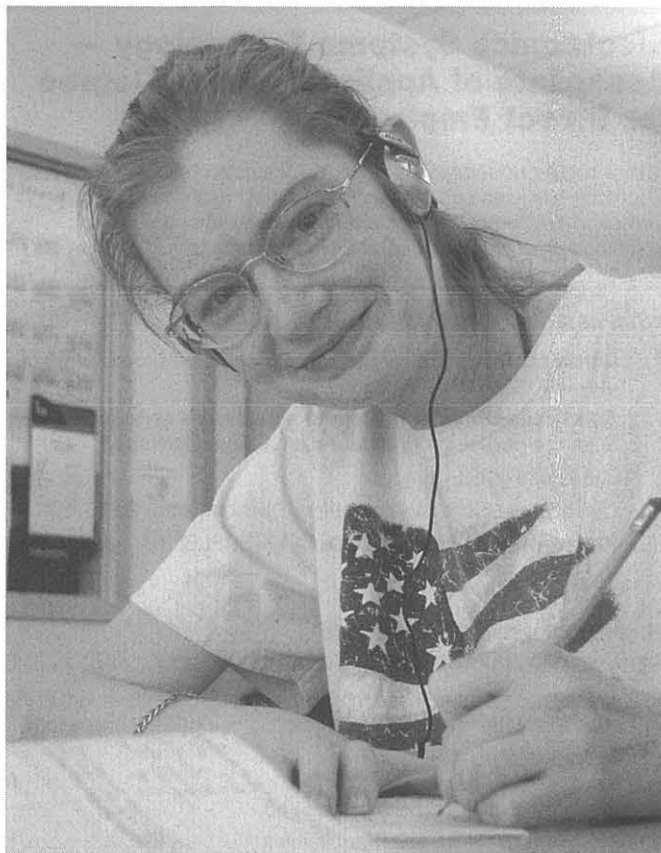
### Required Core Courses -

**A grade of C or better is required for graduation.**

TEC 101*	Physics for Technology (Sp) . . . . .	3
TEC 103*	Light and Optical Systems (Sp). . . . .	2
TEC 113*	Problem Solving for Electronics and Optics (F) . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties (F). . . . .	4
TEC 122/122LB*	Applied Semiconductor Devices (Sp). . . . .	4
TEC 123/123LB*	Digital Circuits and Computers (F) . . . . .	4
TEC 125/125LB*	AC Networks with Phasors (Sp). . . . .	4
TEC 126*	Electronics Construction and Assembly (F) . . . . .	3
TEC 130/130LB*	Computer Assembly and Testing (F). . . . .	4
TEC 171*	Statistical Process Control and Experimentation (Sp) . . . . .	3
TEC 221*	Linear Devices (F) . . . . .	3
TEC 222/222LB*	Electromechanical Devices and Systems (Sp). . . . .	4
TEC 225/225LB*	Fluid Devices and Automated Systems (Sp). . . . .	3
TEC 272*	Semiconductor Manufacturing Processes I (F). . . . .	3
TEC 274/274LB*	Vacuum Systems and Power RF (Sp) . . . . .	3
<b>Subtotal</b>		<b>50</b>

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

Pima Community College Catalog 2007/2008



### Required Support Course

TEC 160*	Microcomputers and Programming Techniques (F) . . . . .	3
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**Total credits as displayed . . . . . 65§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Electronics Systems Technology — Associate of Applied Science Degree for Direct Employment

Gain a broad understanding of general electronics, including basic electricity, devices and circuits, and statistical process control. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment in a broad range of general electronics fields.

**Academic Options:** Transfer to a Bachelor's of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** AASTECELECTR

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... †  
TEC 101 and TEC 113 fulfill this requirement.

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
Core or support course fulfills this requirement.

**Subtotal** ..... 12

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

TEC 101*	Physics for Technology (Sp) .....	3
TEC 103*	Light and Optical Systems (Sp).....	2
TEC 113*	Problem Solving for Electronics and Optics (F) .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties (F)....	4
TEC 122/122LB*	Applied Semiconductor Devices (Sp).....	4
TEC 123/123LB*	Digital Circuits and Computers (F) .....	4
TEC 125/125LB*	AC Networks with Phasors (Sp).....	4
TEC 126*	Electronics Construction and Assembly (F) ....	3
TEC 128/128LB*	Electronic Measurements (Sp).....	3
TEC 130/130LB*	Computer Assembly and Testing (F).....	4
TEC 171*	Statistical Process Control and Experimentation (Sp) .....	3
TEC 221*	Linear Devices (F) .....	3
TEC 222/222LB*	Electromechanical Devices and Systems (Sp) ..	4
TEC 250/250LB*	Digital Devices (F) .....	4
TEC 251/251LB*	Analog Circuits (Sp).....	4
<b>Subtotal</b> .....		<b>52</b>

### Required Support Course

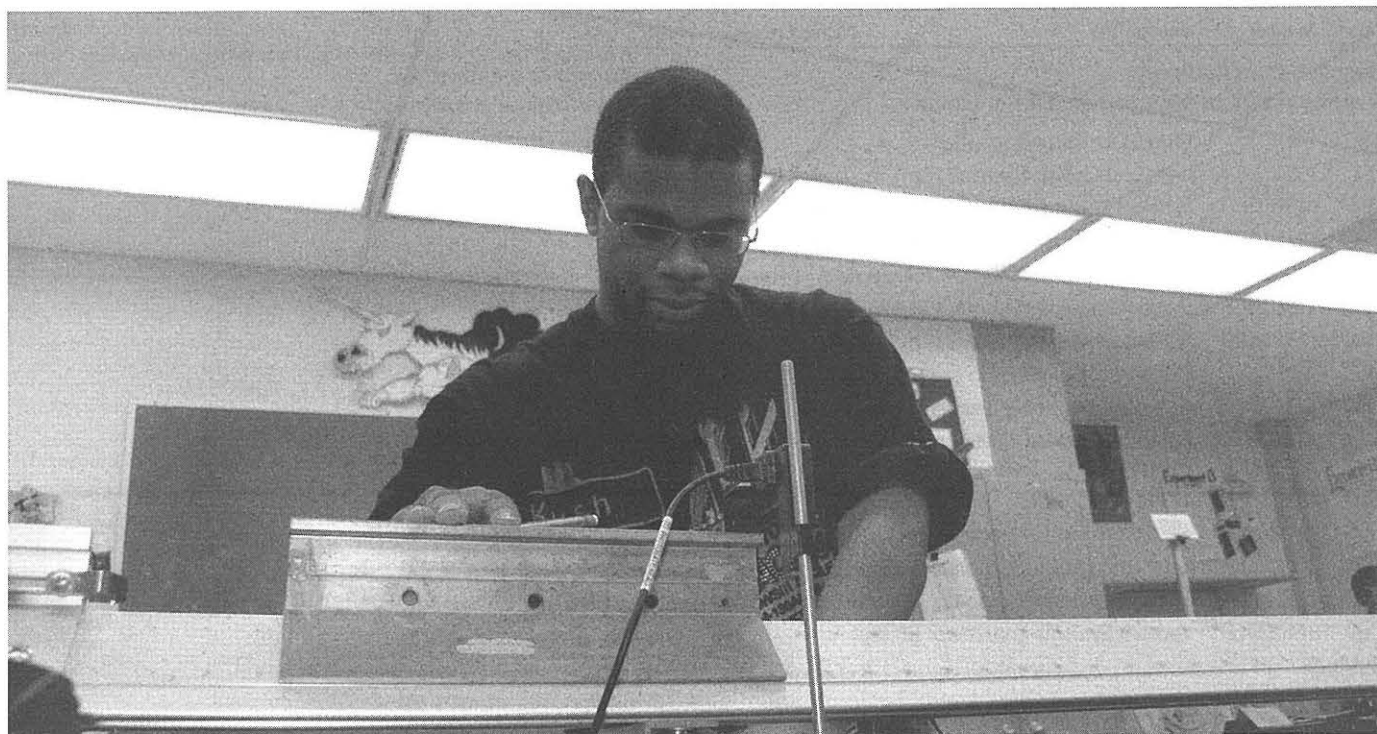
TEC 160\* Microcomputers and Programming Techniques (F) . 3

**Total credits as displayed** ..... **68§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

## Computer Technology — Certificate for Direct Employment

Gain basic, entry-level skills in computer assembly, testing and servicing. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Entry-level employment in computer assembly and servicing.

**Academic Options:** Students may take an additional 25 credit hours to earn an Information Technology Specialist AAS degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** CRTTECCOMPUT

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 3  
See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . †  
TEC 113 fulfill this requirement

**Subtotal** . . . . . 3

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

TEC 101\* Physics for Technology (Sp) . . . . . 3

TEC 103\* Light and Optical Systems (Sp) . . . . . 2

TEC 113\* Problem Solving for Electronics and Optics (F) . 3

TEC 121/121LB\* Basic Electric and Magnetic Properties (F) . . . . 4

TEC 123/123LB\* Digital Circuits and Computers (F) . . . . . 4

TEC 125/125LB\* AC Networks with Phasors (Sp) . . . . . 4

TEC 130/130LB\* Computer Assembly and Testing (F) . . . . . 4

TEC 132/132LB\* Computer Systems Servicing (Sp) . . . . . 4

**Subtotal** . . . . . 28

### Required Support Course

TEC 160\* Microcomputers and Programming  
Techniques (F) . . . . . 3

**Total credits as displayed** . . . . . 33

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Information Technology Specialist — Associate of Applied Science Degree for Direct Employment

Gain skills in computer assembly, testing, and repair while learning computer networks, servers, operating systems, and client server computing. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Obtain employment in assembling, testing and servicing of microcomputer systems and system networks.

**Academic Options:** Transfer to a Bachelor's of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** AASTECCNETWRK

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . †  
TEC 101 and TEC 113 fulfill this requirement.

Humanities and Social Science Requirement . . . . . 6  
See General Education Section, page 56

Computer and Information Literacy Requirement . . . . . †  
Core or support course fulfills this requirement.

**Subtotal** . . . . . 12

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

TEC 101\* Physics for Technology (Sp) . . . . . 3

TEC 113\* Problem Solving for Electronics and  
Optics (F) . . . . . 3

TEC 121/121LB\* Basic Electric and Magnetic Properties (F) . . . . 4

TEC 122/122LB\* Applied Semiconductor Devices (Sp) . . . . . 4

TEC 123/123LB\* Digital Circuits and Computers (F) . . . . . 4

TEC 130/130LB\* Computer Assembly and Testing Lab (F) . . . . . 4

TEC 132/132LB\* Computer Systems Servicing (Sp) . . . . . 4

TEC 230/230LB\* Peer-to-Peer Networking and Cabling  
Fundamentals (Sp) . . . . . 4

TEC 232/232LB\* Dedicated Server Networks (F) . . . . . 4

TEC 235\* Interconnecting Network Devices (S) . . . . . 3

TEC 236\* Underpinnings of the Internet (S) . . . . . 3

TEC 237/237LB\* Contemporary Client/Server Computing (Sp) . . . 3

TEC 239\* UNIX/Linux Support and Service (F) . . . . . 4

**Subtotal** . . . . . 47

*continued next page*



**Support Course**

TEC 160\* Microcomputers and Programming Techniques (F) . . . 3

**Total credits as displayed . . . . . 62§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

## Electro-Optical Assembly and Testing Certificate for Direct Employment

Learn entry-level skills in basic electronic soldering and assembly techniques, optical inspection methods and standards, and assembly of optical components and systems. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

**What can I do with this certificate?**

**Career Options:** Entry-level employment in electronics and optics fields.

**Academic Options:** Take additional courses toward the Optical Manufacturing Certificate or an Optical Systems Technology - AAS degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** CRTOPTICTECB

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
TEC 101*	Physics for Technology (Sp) . . . . .	3
TEC 113*	Problem Solving for Electronics and Optics (F) . . .	3
TEC 117*	Optical Assembly Techniques (Sp) . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties (F) . . . .	4
TEC 126*	Electronics Construction and Assembly (F) . . . .	3
<b>Subtotal . . . . .</b>		<b>16</b>
<b>Total credits as displayed . . . . .</b>		<b>16</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Optical Manufacturing — Certificate for Direct Employment

Gain technical competencies in electronic and optical assembly and testing, including semiconductor devices, AC networks with phasors, and geometric, wave, and fiber optics. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

**What can I do with this certificate?**

**Career Options:** Entry-level employment in electronics and optics industries.

**Academic Options:** Take additional courses for an Optical Systems Technology - AAS degree.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** CRTOPTICTECA

**General Education Requirements -**

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . †  
WRT 154 fulfills this requirement

Analysis and Critical Thinking Requirement . . . . . †  
TEC 113 fulfill this requirement

**Subtotal . . . . . 0**

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
TEC 101*	Physics for Technology (Sp) . . . . .	3
TEC 113*	Problem Solving for Electronics and Optics (F) . . .	3
TEC 117*	Optical Assembly Techniques (Sp) . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties (F) . . . .	4
TEC 122/122LB*	Applied Semiconductor Devices (Sp) . . . . .	4
TEC 125/125LB*	AC Networks with Phasors (Sp) . . . . .	4
TEC 126*	Electronics Construction and Assembly (F) . . . .	3
TEC 140*	Geometric Optics (Sp) . . . . .	2
TEC 141*	Wave Optics (F) . . . . .	3
TEC 286*	Fiber Optics Installation and Testing (Sp) . . . . .	3
<b>Subtotal . . . . .</b>		<b>32</b>

**Required Support Course**

WRT 154\* Career Communications (F-Sp) . . . . . 3

**Total credits as displayed . . . . . 35**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Optical Systems Technology — Associate of Applied Science Degree for Direct Employment

Learn optical electronics, including skills in assembly testing and manufacturing, and laser technology. Complete this program exclusively on weekdays, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment in electronics & optics.

**Academic Options:** Transfer to a Bachelor's of Applied Science degree program at Arizona State University.

Locations: West Campus

Department/Contact Information: Division Dean: 206-6763

**Program Identification Code:** AASOPTICSTEC

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement . . . . . †  
TEC 101 and TEC 113 fulfill this requirement.

Humanities and Social Science Requirement . . . . . 6  
See General Education Section, page 56

Computer and Information Literacy Requirement . . . . . †  
Core or support course fulfills this requirement.

**Subtotal . . . . . 12**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

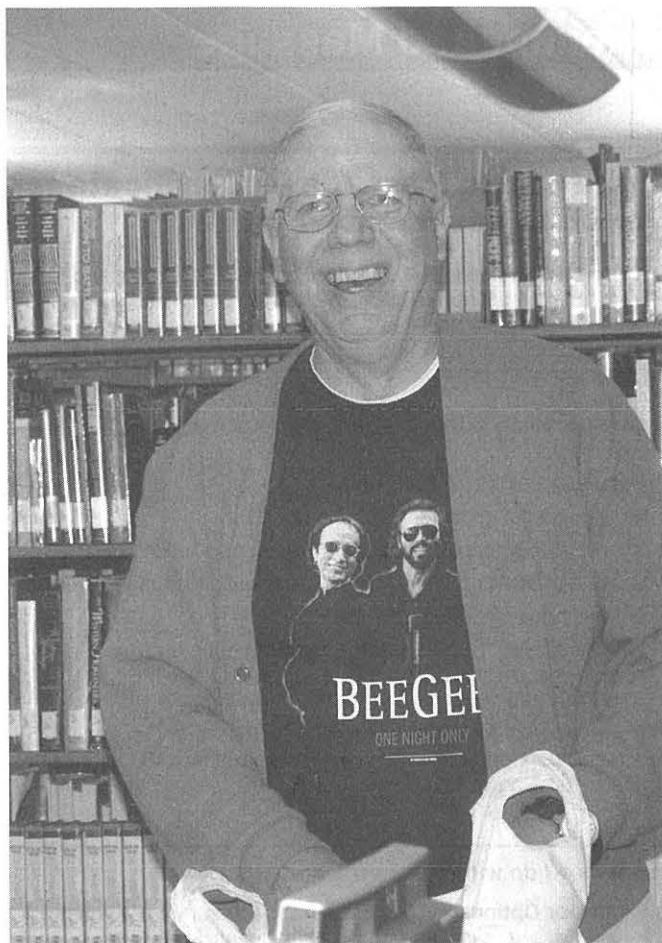
**A grade of C or better is required for graduation.**

TEC 101*	Physics for Technology (Sp) . . . . .	3
TEC 113*	Problem Solving for Electronics & Optics (F) . . .	3
TEC 117*	Optical Assembly Techniques (Sp) . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties (F) . . . .	4
TEC 122/122LB*	Applied Semiconductor Devices (Sp) . . . . .	4
TEC 123/123LB*	Digital Circuits and Computers (F) . . . . .	4
TEC 125/125LB*	AC Networks with Phasors (Sp) . . . . .	4
TEC 126*	Electronics Construction and Assembly (F) . . .	3
TEC 130/130LB	Computer Assembly and Testing (F) . . . . .	4
TEC 140*	Geometric Optics (Sp) . . . . .	2
TEC 141*	Wave Optics (F) . . . . .	3
TEC 171*	Statistical Process Control & Experiment (Sp) . .	3
TEC 274/274LB*	Vacuum Systems and Power RF (Sp) . . . . .	3
TEC 284*	Calibration of Optical Systems (F) . . . . .	3
TEC 286*	Fiber Optics Installation and Testing (Sp) . . . .	3
TEC 287*	Laser Fundamentals (Sp) . . . . .	3
TEC 288*	Optical Testing (Sp) . . . . .	4
<b>Subtotal . . . . .</b>		<b>56</b>

### Required Support Course

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

Pima Community College Catalog 2007/2008



TEC 160*	Microcomputers and Programming Techniques (F) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>71§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Therapeutic Massage

## Therapeutic Massage — Certificate for Direct Employment

Develop techniques in Swedish, Deep Tissue and Injury and Pain Management massage to alleviate muscle tension and pain and promote healing and wellness. Program prepares graduates for the National Licensing Exam and state licensing. Complete this daytime program in 14 to 24 months.

**Before enrolling in this program**, you must meet certain requirements.

- Be at least eighteen years old
- Must have a high school diploma or GED
- Attend a Therapeutic Massage Program orientation session
- Complete advising session with Therapeutic Massage faculty
- Submit application form by due date
- Complete with "C" or better the following courses prior to entry into Massage Therapy Practice classes: BIO 160, PSY 101, TMA 101, TMA 120, WED 110, WED 111
- Completion of requirements specific to massage therapy: drug screening, fingerprinting, current immunizations, TB test, health declaration, and CPR training

### What can I do with this certificate?

**Career Options:** Work as a massage therapist in a variety of wellness, medical and corporate facilities.

**Academic Options:** While this certificate is not intended to transfer to a 4-year university, some of the courses are transferable.

Locations: Northwest Campus

Department/Contact Information: Division Dean: 206-2264  
Lead Faculty: 206-2263

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... †  
WRT 101 fulfills this requirement.

Analysis and Critical Thinking Requirement ..... †  
MAT 106 or MAT 108A fulfills this requirement

**Subtotal** ..... 0

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-S)	4
WED 110	Introduction to Complementary and Alternative Medicine (F-S)	3
WED 111	Self Care for Personal Wellness (Sp-S)	2
TMA 101	Introduction to Massage Therapy (F-Sp)	3
TMA 120	Professionalism and Ethics for Massage Therapists (Sp)	2
TMA 201IN*	Therapeutic Massage Practice I (F)	6
TMA 202IN*	Therapeutic Massage Practice II (F)	6
TMA 202LC*	Therapeutic Massage Practice Clinical Lab I (F)	1
TMA 203IN*	Therapeutic Massage Practice III (Sp)	6
TMA 203LC*	Therapeutic Massage Practice Clinical Lab II (Sp)	1
TMA 210*	Fundamentals of Kinesiology (Sp)	3
TMA 211*	Introduction to Human Systems Pathology (Sp)	3
TMA 290LC*	Therapeutic Massage Clinical (Sp)	4
<b>Subtotal</b>		<b>44</b>

### Required Support Course

PSY 101	Introduction to Psychology (F-Sp-S)	4
ACC 100	Practical Accounting Procedures (F-Sp-S)	3
MGT 124	Small Business Management (F-Sp)	3
WRT 101*	Writing I (F-Sp-S)	3
MAT 106*	Elementary Data Analysis and Statistical Inference (F-Sp-S)	1
MAT 108A*	Practical Geometry and Trigonometry, Module A (F-Sp-S)	1
<b>Subtotal</b>		<b>14</b>
<b>Total credits as displayed</b>		<b>58</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement



## Therapeutic Massage — Associate of Applied Science Degree for Direct Employment

Develop techniques in Swedish, Deep Tissue and Injury and Pain Management massage to alleviate muscle tension and pain and promote healing and wellness. Program prepares graduates for the National Licensing Exam and state licensing. Complete this program exclusively on weekdays.

### Program prerequisites:

- Be at least eighteen years old
- Must have a high school diploma or GED
- Attend a Therapeutic Massage Program orientation session
- Complete advising session with Therapeutic Massage faculty
- Submit application form by due date
- Complete with "C" or better the following courses prior to entry into Massage Therapy Practice classes: BIO 160, PSY 101, TMA 101, TMA 120, WED 110, WED 111
- Completion of requirements specific to massage therapy: drug screening, fingerprinting, current immunizations, TB test, health declaration, and CPR training

### What can I do with this degree?

**Career Options:** Work as a massage therapist in a variety of wellness, medical and corporate facilities.

**Academic Options:** While this degree is not intended to transfer to a 4-year university, some of the courses are transferable.

Locations: Northwest Campus

Department/Contact Information: Division Dean: 206-2264  
Lead Faculty: 206-2263

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 0  
WRT 101 and WRT 102 or SPE 120 fulfill this requirement.

See General Education section, Requirements for Direct Employment Programs

Analysis and Critical Thinking Requirement . . . . . 0  
MAT 122 and BIO 160IN fulfill this requirement

Humanities; Social Science; Leadership and Ethics Requirement . . . 2  
PSY 101 fulfills 4 credits of this requirement. See General Education Section.

Computer and Information Literacy . . . . . 1-3

**Subtotal . . . . . 3-5**

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

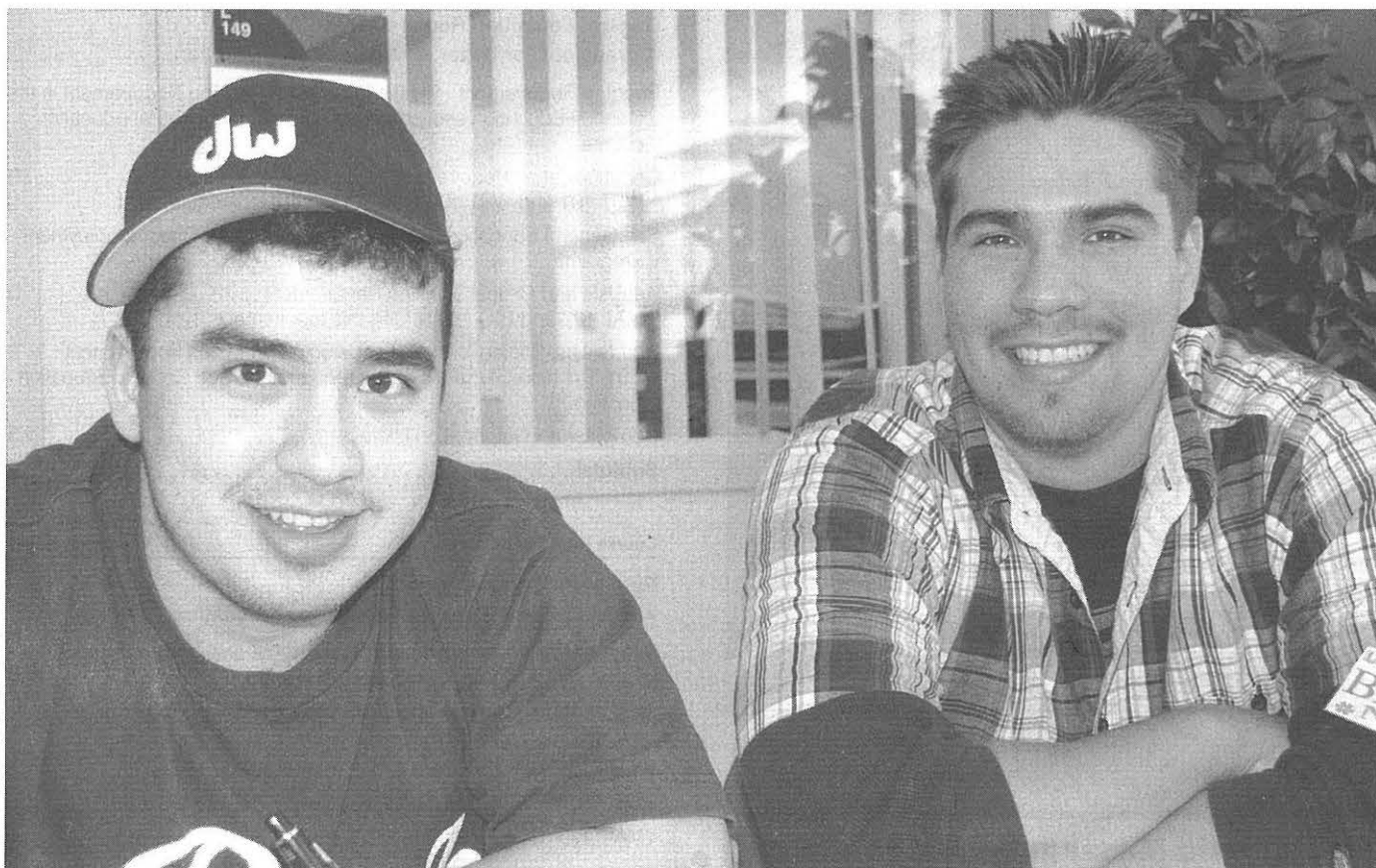
BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-S) . . . . .	4
WED 110	Introduction to Complementary and Alternative Medicine (F-Sp) . . . . .	3
WED 111	Self Care for Personal Wellness (Sp-S) . . . . .	2
TMA 101	Introduction to Massage Therapy (F-Sp) . . . . .	3
TMA 120	Professionalism and Ethics for Massage Therapists (Sp) . . . . .	2
TMA 201IN*	Therapeutic Massage Practice I (F) . . . . .	6
TMA 202IN*	Therapeutic Massage Practice II (F) . . . . .	6
TMA 202LC*	Therapeutic Massage Practice Clinical Lab I (F) . . . . .	1
TMA 203IN*	Therapeutic Massage Practice III (Sp) . . . . .	6
TMA 203LC*	Therapeutic Massage Practice Clinical Lab II (Sp) . . . . .	1
TMA 210*	Fundamentals of Kinesiology (Sp) . . . . .	3
TMA 211*	Introduction to Human Systems Pathology (Sp) . . . . .	3
TMA 290LC*	Therapeutic Massage Clinical (Sp) . . . . .	4
<b>Subtotal . . . . .</b>		<b>44</b>

### Required Support Courses

PSY 101	Introduction to Psychology (F-Sp-S) . . . . .	4
ACC 100	Practical Accounting Procedures (F-Sp-S) . . . . .	3
MGT 124	Small Business Management (F-Sp) . . . . .	3
WRT 101*	Writing I (F-Sp-S) . . . . .	3
WRT 102* or SPE 120	Writing II (F-Sp-S) . . . . . Business and Professional Communication (F-Sp-S)	3
MAT 122*	Intermediate Algebra (F-Sp-S) . . . . .	3
<b>Subtotal . . . . .</b>		<b>19</b>
<b>Total credits as displayed . . . . .</b>		<b>66-68</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.





## Translation Studies

### Translation Studies — Certificate for Direct Employment

Improve your skills in Spanish-English and English-Spanish written translation in the health care, legal, literary and business fields. Courses include both hands-on and theoretical classes, as well as internship opportunities. Complete this program by taking classes on evenings/weekends.

**Before you can enroll**, you must complete WRT 102 or 108; complete SPA 253 and SPA 254 or pass a proficiency test; and demonstrate 50 percent competency translating a document without aid.

#### What can I do with this certificate?

**Career options:** translate written documents between English and Spanish

**Academic Options:** Continue your studies by completing one of Pima's transfer degrees.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7046  
Lead Faculty: 206-7017

**Program Identification Code:** CRTTRANSLATE

Course Number	Course Title	Credit Hours
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#### Required Core Courses -

**A grade of C or better is required for graduation.**

TRS 101	Introduction to Translation (F)	3
TRS 102	Spanish for Translation (Sp)	4
TRS 103	English for Translation (Sp)	4
TRS 120IN*	Technology for Translation and Interpretation (F)	2
TRS 150*	Survey of Translation Specialty Areas (F)	4
TRS 160*	Translation in Specialty Areas (Sp)	4
TRS 282*	Advanced Project in Translation (F)	4
<b>Subtotal</b>		<b>25</b>

#### Required Support Courses

CSA 101	Computer Fundamentals (F-Sp-S)	3
or SPA 240	Grammar and Composition (Sp)	
or SPA 250	Spanish Phonetics (F)	
or any TRS course not in the required core		
<b>Total credits as displayed</b>		<b>28</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

# Truck Driver Training

Become a professional truck driver and prepare for commercial license tests.

## Class A Vehicle Driver — Certificate for Direct Employment

Learn the basics of vehicle operation, commercial driver's license requirements, and driving maneuvers. Classes include driving time. Complete this program exclusively on weekdays.

**Before you enroll you must:** meet admission requirements as outlined by the Truck Driver Training Program

### What can I do with this certificate?

**Career Options:** Driver trainee or co-driver.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6424  
Lead Faculty: 206-2744

**Program Identification Code:** CRTTRUCKCLSA

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
TDT 118*	Basic Vehicle Operations and Commercial Driver's License Requirements (n/o)	5
TDT 119*	Basic Driving Maneuvers (n/o)	3
<b>Total credits as displayed</b>		<b>8</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Professional Truck Driver — Certificate for Direct Employment

### What can I do with this certificate?

**Career Options:** Professional truck driver, and over-the-road sole driver.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6424  
Lead Faculty: 206-2744

**Program Identification Code:** CRTTRUCKDRIV

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
TDT 101*	Introduction to Trucking and First Aid (F-Sp-S)	3
TDT 102*	Driver Challenges and Air Brake System (F-Sp-S)	3
TDT 103*	Introduction to Hours of Service and Department of Transportation Regulations (F-Sp-S)	3
TDT 104*	Hazardous Materials /Department of Transportation Regulations (F-Sp-S)	3
TDT 105*	Defensive Driving and Cargo Handling (F-Sp-S)	3
TDT 106*	Pre-Trip and Backing Skills (F-Sp-S)	1
TDT 107*	Basic Control (F-Sp-S)	1
TDT 108*	Proficiency Development (F-Sp-S)	1
TDT 109*	Extreme Driving Conditions (F-Sp-S)	1
TDT 110*	Introduction to Externship (F-Sp-S)	1
TDT 190A	Truck Driver Training Externship A (F-Sp-S)	1
and TDT 190B	Truck Driver Training Externship B (F-Sp-S)	1
and TDT 190C	Truck Driver Training Externship C (F-Sp-S)	1
<b>Total credits as displayed</b>		<b>23</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Basic Truck Driver — Certificate for Direct Employment

Courses cover trucking basics, including tractor-trailer operation and safe driving techniques. Classes include driving time. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Tractor-trailer driver trainee or co-driver.

Locations: Community Campus

Department/Contact Information: Division Dean: 206-6424

Lead Faculty: 206-2744

**Program Identification Code:** CRTRUCK-B

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
TDT 112*	Preparation for the Commercial Driver's License Exam (n/o) .....	5
TDT 113*	Operation of a Tractor-Trailer (n/o) .....	2
TDT 114*	Inspect, Operate and Safe Driving a Tractor-Trailer (n/o) .....	5
<b>Total credits as displayed .....</b>		<b>12</b>

## Straight Truck and Bus Driver — Certificate for Direct Employment

Gain basic knowledge of straight truck and bus driving. Classes include driving time. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Straight truck or bus driver.

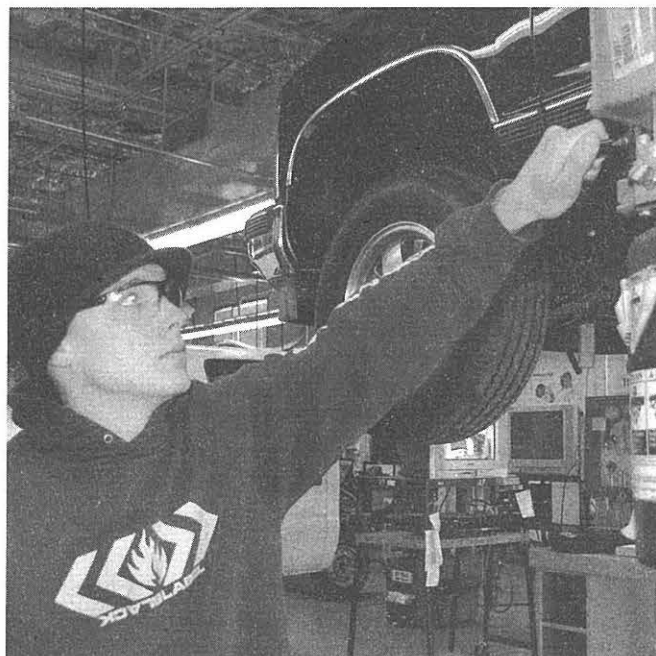
Locations: Community Campus

Department/Contact Information: Division Dean: 206-6424

Lead Faculty: 206-2744

**Program Identification Code:** CRTRUCKSBUS

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
TDT 116*	Straight Truck and Bus Driver (n/o) .....	3
TDT 117*	Straight Truck and Bus Driver: Road and Range (n/o) .....	3
<b>Total credits as displayed .....</b>		<b>6</b>



## Commercial Truck Driver — Certificate for Direct Employment

Courses cover tractor-trailer operation and safe driving techniques. Practical experience is provided with a trucking company to help prepare students for solo positions. Complete this program by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this certificate?

**Career Options:** Tractor-trailer driver, and sole driver.

Locations: Community Campus

Department/Contact Information: Division Dean/Lead Faculty: 206-2744

**Program Identification Code:** CRTRUCKDCOM

Course Number	Course Title	Credit Hours
<b>Required Core Courses -</b>		
<b>A grade of C or better is required for graduation.</b>		
TDT 112*	Preparation for the Commercial Driver's License Exam (n/o) .....	5
TDT 113*	Operation of a Tractor-Trailer (n/o) .....	2
TDT 114*	Inspect, Operate and Safe Driving a Tractor-Trailer (n/o) .....	5
TDT 110*	Introduction to Externship (F-Sp-S) .....	1
TDT 190A	Truck Driver Training Externship A (F-Sp-S) .....	1
and TDT 190B	Truck Driver Training Externship B (F-Sp-S) .....	1
and TDT 190C	Truck Driver Training Externship C (F-Sp-S) .....	1
<b>Total credits as displayed .....</b>		<b>16</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

# Veterinary Technology

Learn to provide veterinary care to animals and how to work in the front office area of veterinary practices.

## Veterinary Practice Assistant — Certificate of Direct Employment

Learn how to work in the front office area of veterinary practices. This certificate focuses on management and communication skills in a veterinary practice. Complete this program using day classes.

### What can I do with this certificate?

**Career Options:** Work in the front office area of veterinary practices.

**Academic Options:** Transfer 6 credits of this certificate to the Associate of Applied Science Degree in Veterinary Technology.

Location: East Campus

Department/Contact Information: Division Dean: 206-7694  
Lead Faculty: 206-7414

**Program Identification Code:** CRTVEP

Course Number	Course Title	Credit Hours
<b>Required Core Course -</b>		
<b>A grade of C or better is required for graduation.</b>		
VET 106	Basic Skills for Veterinary Practice Assistants (F-Sp) .....	3
VET 107	Advanced Skills for Veterinary Practice Assistants (F-Sp) .....	3
VET 108	Introduction to Veterinary Facility Practices (F-Sp) .....	6
<b>Total credits as displayed .....</b>		<b>12</b>



## Veterinary Technician — Associate of Applied Science Degree

Learn to provide veterinary care to animals, including nutrition, nursing, anesthesiology, radiography and clinical laboratory procedures. Gain practical experience in clinic settings. This program is accredited by the American Veterinary Medical Association. Complete this program exclusively on weekdays.

**Before you can enroll,** you must meet certain requirements:

- High school diploma or GED.
- Score at the level of REA 112 in the reading assessment or complete REA 091 with at least a C grade.
- Complete MAT 122, BIO 100IN, CHM 130 and CSA 100 with at least a C grade.
- Have proof of personal medical insurance. Student health insurance is available through Pima.
- Have proof of immunizations: pre-exposure rabies vaccination series and tetanus toxoid.
- Complete program admissions procedures.
- Be able to meet physical requirements of lifting at least forty pound animals; restraining dogs, cats, exotic animals, horses, cows, birds, etc.; standing for long periods of time; bending and lifting; having manual dexterity to assist in surgery and have ability to communicate with veterinarians and clients. This is a physically demanding occupational field

*continued next page*



**What can I do with this degree?**

**Career Options:** Work as a certified veterinary technician for veterinarians, biological research workers, scientists and business or organizations that provide care for animals. After completion of the program, students apply to take state and national board exams for certification.

**Academic Options:** While this program is not designed for transfer to a 4-year university, program courses are transferable to some universities.

Locations: East Campus

Department/Contact Information: Division Dean: 206-7694

Lead Faculty: 206-7414

**Program Identification Code:** AASVETTECH

**General Education Requirements -**

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... †  
BIO 100IN and MAT 122 fulfill this requirement.

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
CSA 100 fulfills this requirement.

**Subtotal** ..... **12**

Course Number	Course Title	Credit Hours
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**Required Core Courses -**

**A grade of C or better is required for graduation.**

VET 100*	Introduction to Veterinary Technology (F) .....	3
VET 110*	Veterinary Nursing Procedures I (F) .....	3
VET 111*	Veterinary Nursing Procedures II (Sp) .....	3
VET 120*	Clinical Pathology I (Sp) .....	3
VET 121*	Clinical Pathology II (F) .....	3
VET 130*	Animal Anatomy and Physiology I (F) .....	4
VET 131*	Animal Anatomy and Physiology II (Sp) .....	3
VET 150*	Pharmacology (Sp) .....	3
VET 191*	Veterinary Technician Clinical Experience I (S) ....	3
VET 200*	Anesthetic and Surgical Nursing (F) .....	3
VET 205*	Radiology and Imaging Techniques (Sp) .....	3
VET 210*	Veterinary Nursing Procedures III (Sp) .....	2
VET 211*	Veterinary Nursing Procedures IV (F) .....	2
VET 220*	Clinical Pathology III (Sp) .....	3
VET 225*	Veterinary Hospital Procedures (F) .....	3
VET 291*	Veterinary Technician Clinical Experience (Sp) ....	3
<b>Subtotal</b> .....		<b>47</b>

**Required Support Courses**

BIO 100IN	Biology Concepts (F-Sp-S) .....	4
CHM 130/130LB/130IN	Fundamentals of Chemistry (F-Sp-S) .....	5
CSA 100	Computer Literacy (F-Sp-S) .....	1
MAT 122*	Intermediate Algebra (F-Sp-S) .....	3
<b>Subtotal</b> .....		<b>13</b>
<b>Total credits as displayed</b> .....		<b>72§</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.

# Welding

## Welding — Associate of Applied Science Degree for Direct Employment

Learn various welding and pipe fabrication techniques. Complete this program exclusively on weekdays, exclusively on evenings/weekends, or in a combination of day, evening and weekend classes.

### What can I do with this degree?

**Career Options:** Entry-level employment as a welder.

**Academic Options:** Transfer to a Bachelor of Applied Science degree program.

Locations: Downtown Campus

Department/Contact Information: Division Dean: 206-7134  
Lead Faculty: 206-7196

**Program Identification Code:** AASWELDING

### General Education Requirements -

**A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement ..... 6  
See General Education Section, page 56

Analysis and Critical Thinking Requirement ..... 3  
GTM 105 fulfills 3 credits of this requirement  
See General Education Section, page 56

Humanities and Social Science Requirement ..... 6  
See General Education Section, page 56

Computer and Information Literacy Requirement ..... †  
CAD 101 fulfills this requirement  
See General Education Section, page 56

**Subtotal** ..... 15

Course Number	Course Title	Credit Hours
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### Required Core Courses -

**A grade of C or better is required for graduation.**

WLD 110	Basic Arc and Oxyacetylene Welding (F-Sp)	4
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WLD 115*	Blueprint Reading/Estimating (F-Sp)	4
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WLD 119*	Pattern Layout for Pipe and Structural Welding (F-Sp)	4
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WLD 160	Arc Welding (F-Sp-S)	4
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WLD 250*	Pipe and Structural Welding (Sp)	4
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WLD 261*	Gas Metal Arc Welding (F-Sp)	4
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WLD 262*	Gas Tungsten Arc Welding (F-Sp)	4
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WLD 263	Layout and Fabrication Welding (Sp)	4
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**Subtotal** ..... 32

### Required Support Courses

CAD 101	Computer Aided Drafting Fundamentals (F-Sp-S)	4
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GTM 105*	Applied Technical Mathematics (F-Sp-S)	3
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Technical Electives		6
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Complete 11 credit hours from the following:  
OAP 111A, BCT, CAD, CSA, MGT, MAC, WLD.

**Subtotal** ..... 13

**Total credits as displayed** ..... 60

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

† Core or support course(s) fulfill this requirement.



## Writing

Learn to communicate effectively through the written word by taking courses that focus on grammar, poetry and short story writing, business writing, research skills, creative nonfiction, critical analysis of literature and more. Writing courses are also offered for those who are not native speakers of English.

Writing courses are offered as part of the requirements of the **AGEC** and the **Associate of Arts in Liberal Arts Degree for Transfer**, may be taken as an **AA Creative Writing Concentration**, or may be taken as required or elective courses to complete other degrees. Students interested in pursuing a degree at ASU, NAU or UA should meet with the writing faculty to plan their course of study using the appropriate transfer guide.

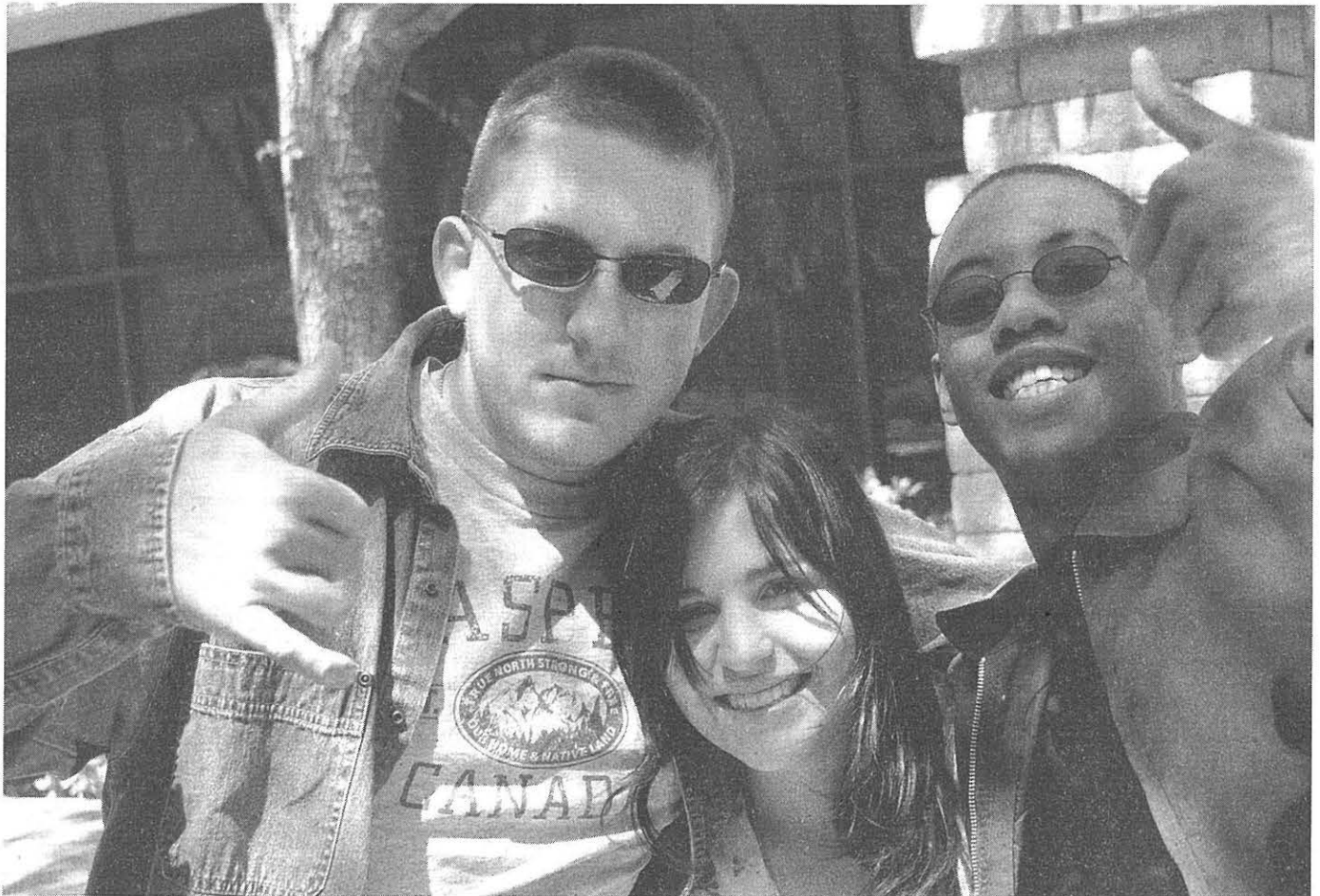
### *What can I do with my studies in writing?*

**Academic options:** continue studies towards a bachelor of arts in English, journalism, education or other humanities disciplines.

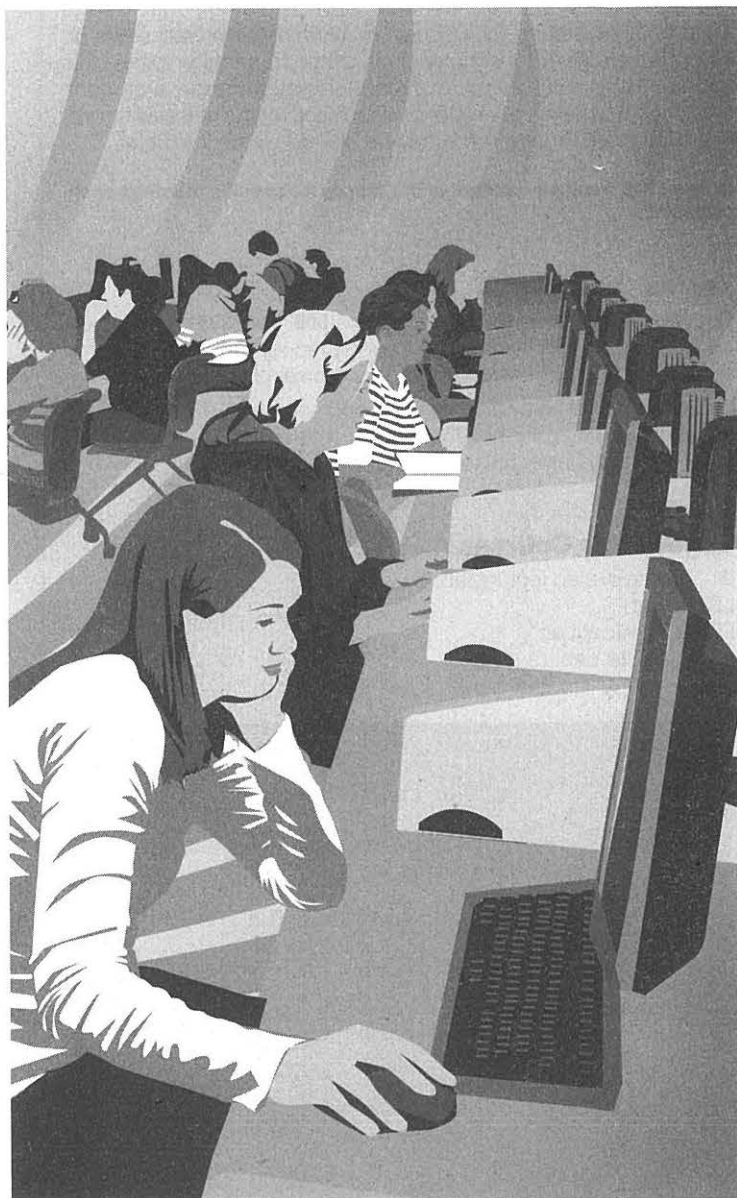
Location: All campuses

Department / Contact Information:

Division Deans: 206-5105 (Desert Vista)  
 206-7045 (Downtown)  
 206-7661 (East)  
 206-2180 (Northwest)  
 206-6690 (West)  
 206-6476 (Community)



# Educational Courses





## Course Numbering System and Prerequisites

Courses numbered from 001-099 are those unique to the community college, are considered developmental in nature, are not anticipated to be transferable, and do not satisfy degree requirements.

Courses numbered 100-199 are considered to be on the freshman level. Courses numbered 200-299 are considered to be on the sophomore level.

### Sample course listing:

ACC	101	Financial Accounting	/3 cr. hrs.	/3 periods (3 lec.)
course prefix	course number	course title	semester hours of credit	hours of lecture and/or lab per week

A student registering for a course must meet the prerequisites or otherwise satisfy the instructor of his or her preparation to take the course. After notification, an instructor may withdraw a student who does not have the proper prerequisites for the class as stated in the catalog. Prerequisites may be waived by the instructor.

Consult the semester *Schedule of Classes* for specific offerings each semester.

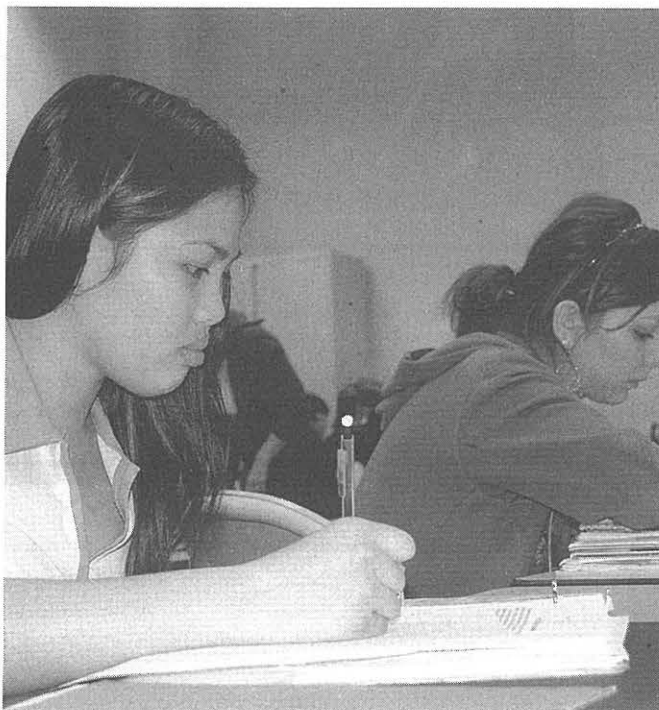
## Topics Courses

Courses designated with the numbers **098, 198, 298** are courses created by a Pima Community College faculty member to offer a specific subject not found in the regular courses of the college catalog.

Students should be aware that these courses are NOT designed for transfer to a university, nor does Pima Community College articulate them with any university to seek transfer status.

## Legend for Courses

IN	Integrated lecture/lab
LB	Lab
LC	Clinical Lab
LS	Skills Lab



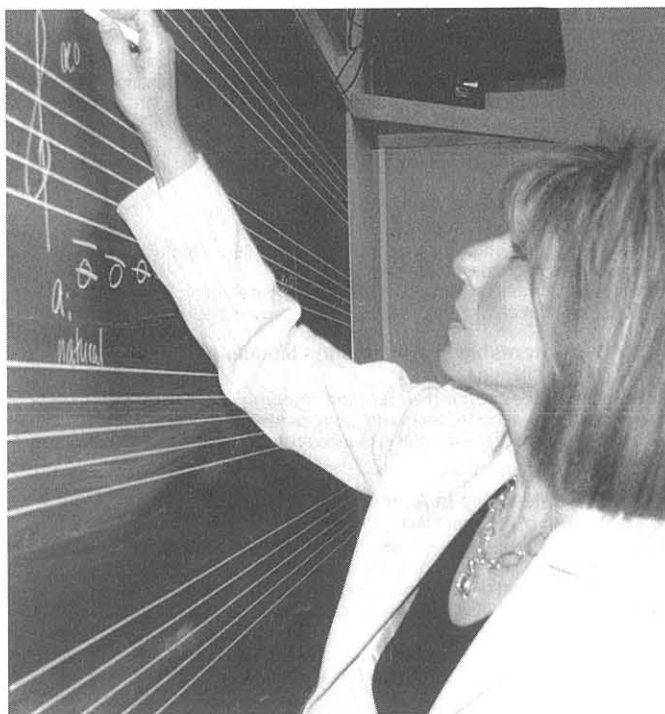
## Listing of Course Prefixes

Accounting	ACC
Administration of Justice	AJS
American Indian Studies	AIS
Anthropology	ANT
Apache	APC
Arabic	ARB
Archaeology	ARC
Art	ART
Art for Personal Development	APD
Asian American Society	APA
Assembly Production	ASP
Astronomy	AST
Automotive Technology	AUT
Aviation Technology	AVM
Biology	BIO
Building and Construction Technology	BCT
Business	BUS
Chemistry	CHM
Childhood Development Associate	CDA
Chinese	CHI
Community Development Education	CDE
Computer Aided Design/Drafting	CAD
Computer Information Systems	CIS
Computer Software Applications	CSA
Cooperative Education	CED
Credit Union (see Finance)	FIN
Crime Scene Management	CSM
Culinary Arts	CUL
Dance	DNC
Dental Assisting	DAE
Dental Hygiene	DHE
Dental Laboratory Technology	DLT
Design (see Interior Design)	IDE
Digital Arts	DAR
Direct Care Professional	DCP
Early Childhood Education	ECE
Economics	ECN
Education	EDU
Educational Technology Training	ETT
Education – Special Education	EDS
Electrical Utilities Technology	EUT
Emergency Medical Technology	EMT
Engineering	ENG
English as a Second Language	ESL
Environmental Technology	ENV
Equine Science	EQS
Experiential Education	EED
Exploratory	EXP
Fashion Design and Clothing	FDC
Finance	FIN
Fire Science	FSC
Fitness and Recreation	FAR
Fitness and Sport Sciences	FSS
Food Science and Nutrition	FSN
Foundations for Personal Change	FPC

## Listing of Course Prefixes *(continued)*

French	FRE
General Technology Mathematics	GTM
Geography	GEO
Geology	GLG
German	GER
Greek	GRK
Health Care	HCA
Health Continuing Education	HCE
Health Education	HED
Health Information Technology	HIT
Hebrew	HEB
History	HIS
Histotechnology	HTP
Honors Program	HON
Hotel and Restaurant Management	HRM
Human Resources Management	HRS
Humanities	HUM
iCarnegie Computer Information Systems	ICG
Interior Design	IDE
International Business Studies	IBS
Interpreter Training	ITP
Italian	ITA
Japanese	JPN
Journalism	JRN
Korean	KOR
Landscape Technician Program	LTP
Latin	LAT
Law Enforcement	LEN
Literature	LIT
Machine Tool Technology	MAC
Magnetic Resonance Imaging	MRI
Maintenance Technology	MNT
Management	MGT
Marketing	MKT
Mathematics	MAT
Medical Laboratory Technician	MLT
Music	MUS
Music Studio Instruction	MUP
Nursing	NRS
Nursing Assistant	NRA
Office and Administrative Professions	OAP
Optical Science	OPS
Paralegal	PAR
Pharmacy Technology	PHT
Philosophy	PHI
Physics	PHY
Political Science	POS
Portuguese	POR
Process Technology	PRO
Production Inventory Management	PIM
Professional Flight Technology	PFT
Psychology	PSY
Public Administration	PAD
Public Safety Communications	PSC
Quality Control Technology	QCT

Radiologic Technology	RAD
Reading	REA
Real Estate	RLS
Religion	REL
Reserve Officers Training Corps – ROTC Air Force	MLA
Reserve Officers Training Corps – ROTC Army	MLS
Reserve Officers Training Corps – ROTC Navy	NSP
Respiratory Therapy	RTH
Restaurant, Culinary and Food Service Management	RCF
Russian	RUS
Safety	SAF
Safety Education for Lift Truck	SED
Science for Teachers	SCT
Sign Language	SLG
Social Services	SSE
Sociology	SOC
Spanish	SPA
Speech Communication	SPE
Student Success	STU
Technology	TEC
Theater	THE
Therapeutic Massage	TMA
Tohono O'odham	THO
Translation Studies	TRS
Travel Industry Operations	TVL
Truck Driver Training	TDT
Veterinary Technology	VET
Welding	WLD
Wellness Education	WED
Women's Studies	WST
Writing	WRT
Yaqui	YAQ



## ACCOUNTING

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### ACC 100 Practical Accounting Procedures

3 credit hours/ 3 periods (3 lec.)

Introduction to accounting systems for small businesses. Includes an introduction to accounting, accounting equation, procedures for controlling cash, payroll accounting, special journals, computer accounting, and ethical issues in the business process.

Offered: Fall, Spring, Summer.

### ACC 101 Financial Accounting

3 credit hours/ 3 periods (3 lec.)

Introduction to accounting as a service activity, analytical discipline, and information system. Includes financial statements and the accounting profession, recording accounting and transactional data, merchandising operations, internal control and ethical issues, asset reporting, reporting and analyzing liabilities and stockholder's equity, statements of cash flow, and performance measurement.

Information: Students planning to transfer to the Eller Business College should take ACC 101 the semester prior to their application semester.

Offered: Fall, Spring, Summer.

### ACC 102 Managerial Accounting

3 credit hours/ 3 periods (3 lec.)

Accounting information for managers. Includes managerial accounting environment, systems design, cost behavior analysis and use, profit planning, standard costs, and decision making.

Prerequisite(s): ACC 101.

Recommendation: Completion of MAT 092 or higher before enrolling in this course.

Offered: Fall, Spring, Summer.

### ACC 150 Payroll Accounting

3 credit hours/ 3 periods (3 lec.)

Current practices in payroll accounting and tax reporting. Includes payroll and personnel records, computing and paying wages and salaries, analyzing and journalizing payroll transactions, and computerized payroll systems and payroll projects.

Prerequisite(s): ACC 100 or 101.

Offered: Fall, Spring.

### ACC 160 Basic Tax Preparation

3 credit hours/ 3 periods (3 lec.)

Basic skills in tax preparation. Includes preparation of federal Form 1040EZ, 1040A and simple 1040, selected schedules, worksheets, and other forms. Also includes preparation of Arizona tax forms.

Information: Requires supervised tax preparation work at a community site. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

### ACC 173 Government and Not-For-Profit Accounting

3 credit hours/ 3 periods (3 lec.)

Accounting practices used in governmental units, and not-for profit organizations. Includes basic characteristics of fund accounting, functions of governmental accounting, budgetary process, basic fund accounting system, financial reporting objectives, and government-wide financial statements.

Prerequisite(s): ACC 101.

Offered: Spring

### ACC 190 Internship in Accounting

1.2-9 credit hours/ 2-41 periods (1 lec., 1-40 lab)

Supervised internship in an accounting workplace. Includes experiences supervised by a professional in the field.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### ACC 190A Internship in Accounting - Module A

1 credit hour/ 1 period (1 lec.)

Survey of the accounting workplace. Includes up-to-date employment information, preparing for work, and job-related expectations.

Information: Consent of instructor is required before enrolling in this course.

Offered: Summer.

### ACC 190B Internship in Accounting - Module B

.2-8 credit hours/ 1-40 periods (1-40 lab)

Experience in the accounting workplace. Includes assignment in a professional office and supervision by a Pima faculty member and a workplace supervisor.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### ACC 200 Computerized Accounting I

4 credit hours/ 4 periods (4 lec.)

Fundamental accounting applications using commercial applications software. Includes the computer operating system, commercial accounting program modules, accounting projects, electronic spreadsheet as the accounting tool, and accounting information on the Internet.

Prerequisite(s): ACC 100 or 101.

Offered: Fall, Spring.

### ACC 201 Intermediate Accounting I

3 credit hours/ 3 periods (3 lec.)

Comprehensive coverage of financial accounting topics. Includes environment of accounting, accounting information system, present value applications to accounting problems, cash control, receivables and investments, inventory valuation methods, tangible fixed assets, current and long-term liabilities, and intangible assets.

Prerequisite(s): ACC 102.

Offered: Fall.

### ACC 202 Intermediate Accounting II

3 credit hours/ 3 periods (3 lec.)

Continuation of ACC 201. Includes stockholder's equity, long and short term liabilities, income taxes, pension plans, leases, and accounting changes, statement of cash flow, and full disclosure in financial reporting. Also includes continual integration of theory and practice in the accounting treatment of investments.

Prerequisite(s): ACC 201.

Offered: Spring.

### ACC 203 Cost Accounting

3 credit hours/ 3 periods (3 lec.)

Analysis of cost data for management planning, coordination, and control. Includes cost accounting fundamentals, costing systems, tools for planning and control, and cost information for decision making.

Prerequisite(s): ACC 102.

Offered: Spring.

### ACC 204 Individual Tax Accounting

4 credit hours/ 4 periods (4 lec.)

Principles of accounting for taxes on individuals. Includes federal tax laws for individuals, gross income, deductions and losses, special tax computations, property transactions, and income tax preparation and related forms.

Prerequisite(s): ACC 100 or 101.

Offered: Fall, Spring.

### ACC 210 Computerized Accounting II

4 credit hours/ 4 periods (4 lec.)

Continuation of ACC 200 using advanced accounting applications and commercial applications software. Includes working with an accounting practice set, advanced accounting spreadsheets, and accounting software research on the Internet.

Prerequisite(s): ACC 200.

Offered: Fall, Spring.

### ACC 215 QuickBooks Computer Accounting

2 credit hours/ 2 periods (2 lec.)

Use of current QuickBooks software to set up and maintain accounting records for a small business. Includes accounts receivable, accounts payable, inventory, and payroll features.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### ACC 220 Peachtree Computer Accounting

2 credit hours/ 2 periods (2 lec.)

Use of current Peachtree software to set up and maintain accounting records for a small business. Includes accounts receivable, accounts payable, inventory, and payroll features.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### ACC 250 Certified Bookkeeper Review

3 credit hours/ 3 periods (3 lec.)

Preparation for the American Institute of Professional Bookkeepers (AIPB) Certified Bookkeeper examination. Includes certified bookkeeper program, accruals, deferrals, and the adjusted trial balance, correction of accounting errors and the bank reconciliation, payroll, depreciation, inventory, and internal controls and fraud prevention.

Prerequisite(s): ACC 100 or 101.

Offered: Spring.

### ACC 255 Business Admissions Exam Review

1 credit hour/ 1 period (1 lec.)

Review of basic accounting systems including the accounting cycle, identification of events that characterize economic activity, and the collection and communication of financial activity. Reexamines recording and analyzing



accounting data; financial reports; internal control of assets; and the measurement and reporting of liabilities and owner's equity. Also includes principles of business, finite math, basic probability, summation, compound interest, random variables and random sampling.

Prerequisite(s): ACC 101 and MAT 173.

Recommendation: Students have a "B" or better in prerequisites due to rigorous program entrance requirements. ACC 102 and MAT 174 should be taken in the semester before you sit for the Eller School of Business Entrance Exam. Information: Prerequisites or consent of instructor is required before enrolling in this course. May be taken 4 times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

### **ACC 260 Principles of Fraud Examination**

3 credit hours/ 3 periods (3 lec.)

Overview of the field of fraud examination and examination methodology and detailed examination of the most prevalent fraud schemes. Includes categories of occupational fraud and abuse, asset misappropriation, corruption schemes, accounting principles and fraud examination strategies, fraudulent financial statement schemes, and interviewing witnesses. Also includes preparation to sit for the Certified Fraud Examination.

Prerequisite(s): ACC 101.

## **ADMINISTRATION OF JUSTICE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **AJS 101 Introduction to Administration of Justice Systems**

3 credit hours/ 3 periods (3 lec.)

History and philosophy of administration of justice in America. Includes identifying the various subsystems, role expectations, and their interrelationships, theories of crime, punishment and rehabilitation, ethics, education and training for professionalism in the system, and career opportunities related to local criminal justice agencies.

Offered: Fall, Spring, Summer.

### **AJS 109 Criminal Law**

3 credit hours/ 3 periods (3 lec.)

Historical development and philosophy of law and constitutional provisions. Includes definitions, classifications of crime and their application to the system of administration of justice, legal research, study of case law, methodology, and concepts of law as a social force.

Offered: Fall, Spring.

### **AJS 115 Criminal Procedures**

3 credit hours/ 3 periods (3 lec.)

Overview of the system used in the United States to administer criminal cases. Includes implications for civil rights, the police process, the prosecuting attorney, the defense attorney, courts, grand jury, trial jury, coroner-medical examiner, judicial process, and the trial, and its aftermath.

Offered: Fall, Spring.

### **AJS 123 Corrections as a Process**

3 credit hours/ 3 periods (3 lec.)

Overview of corrections as a process and its appropriate place in the criminal justice system. Includes the study of inmate characteristics, prison culture, correctional history and philosophies. Also includes community corrections, supervision and career opportunities in corrections.

Recommendation: Completion of AJS 101 before enrolling in this course.

Offered: Fall, Spring.

### **AJS 124 Ethics and the Administration of Justice**

3 credit hours/ 3 periods (3 lec.)

Exploration of ethical issues and the justice system. Includes elements of moral and ethical behavior, principles of justice, and theories of moral development. Also includes ethics of the police, courts, corrections, and modern issues in the administration of justice.

Offered: Fall, Spring.

### **AJS 150 Defensive Tactics for Law Enforcement**

3 credit hours/ 3 periods (3 lec.)

Force tactics as they apply to law enforcement. Includes the use of verbal and physical skills to accomplish control with a minimum potential of injury to the officer or subject. Also includes handcuffing, impact weapons, and handgun retention.

Offered: Fall, Spring.

### **AJS 160 Introduction to Youth Services**

3 credit hours/ 3 periods (3 lec.)

Introduction to the field of youth services as offered through voluntary youth organizations, social service and child welfare agencies, juvenile detention and correctional agencies and community health care agencies. Includes the normal development needs of children and adolescents, the special needs of dependent, delinquent, challenged and special needs youth, roles of youth

workers, and the need to focus on prevention through strengthening families and communities. Also includes a survey of local youth serving agencies.

Information: Same as SSE 160.

Offered: May not be offered this year, check class schedule.

### **AJS 170 Death Investigation**

3 credit hours/ 3 periods (3 lec.)

Procedures and techniques of investigating sudden and unexpected, suspicious and violent deaths within the framework of a modern law enforcement and medical examiner system.

Information: Completion of AJS 101 or consent of instructor is required before enrolling in this course.

Offered: Fall.

### **AJS 201 Rules of Evidence**

3 credit hours/ 3 periods (3 lec.)

The origin, development, philosophy and constitutional basis of evidence. Includes constitutional and procedural considerations affecting arrest and search and seizure. Also includes degrees of evidence and rules governing admissibility, judicial decisions interpreting individual rights, and case studies.

Offered: Fall, Spring.

### **AJS 204 Criminal Investigation and Report Preparation**

3 credit hours/ 3 periods (3 lec.)

Fundamentals of modern criminal investigation. Includes procedures and skills in search and investigation, conduct at the crime scene, collection and preservation of evidence, developing sources of information, preparation of cases for court prosecution, and report-writing requirements for administration and court use.

Information: AJS 109 or concurrent enrollment or consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### **AJS 210 Police Community and Human Relations**

3 credit hours/ 3 periods (3 lec.)

Survey of the police officer's role in attaining and maintaining public support. Includes recognition and understanding of community problems, community action programs, methods of coping with crisis situations, ethnic and minority cultures, various environments, crime prevention, and police operations in relation to these cultures and environments.

Offered: Fall, Spring.

### **AJS 212 Juvenile Justice Procedures**

3 credit hours/ 3 periods (3 lec.)

The course will examine the causes, responses and prevailing legal and social practices concerning delinquency in America. Includes issues pertaining to the family, schools, gang membership, drug use and youth victimization. Also includes the juvenile justice system including the history and philosophy of the juvenile court, court decision-making, sentencing practices, diversion, institutionalization, community supervision and how it interfaces with the administration of justice.

Recommendation: Completion of AJS 101 before enrolling in this course.

Offered: Fall, Spring.

### **AJS 225 Criminology**

3 credit hours/ 3 periods (3 lec.)

Survey of the nature, extent and control of crime and delinquency. Includes comparison of theoretical and practical approaches to causation, prevention, punishment and treatment, and current problems.

Offered: Fall, Spring.

### **AJS 246 Race & Ethnicity Issues in the Administration of Justice**

3 credit hours/ 3 periods (3 lec.)

Focus on minorities in the criminal justice system. Includes multi-cultural community ties: challenges for law enforcement and corrections, cross-cultural communication, the Latino/Hispanic American offender, the American Indian offender, the African American offender, peace officer image and cultural sensitivity, and police officer professionalism and peacekeeping strategies in a diverse society.

Offered: Fall, Spring.

### **AJS 256 Justice System Administration**

3 credit hours/ 3 periods (3 lec.)

Examination of crime, punishment, and correctional practices. Includes current issues affecting the economy, politics, social stability, prison and community corrections, and minorities.

Offered: May not be offered this year, check class schedule.

### **AJS 280 Terrorism in the 21st Century**

3 credit hours/ 3 periods (3 lec.)

Exploration into the definition, history, cause and goals of terrorism. Includes identification of terrorists and their motivations and examination of tactics used by terrorists in pursuit of their goals. Also includes methods used to combat terrorism including intelligence collection, security measures, diplomacy, legal and political responses.

Offered: May not be offered this year, check class schedule.



**AJS 290 Administration of Justice Field Experience**

1-3 credit hours/ 5-15 periods (5-15 lab)

Participation in community administration of justice agencies. Includes experience in the practical application of classroom instruction. Also includes biweekly seminars to discuss theory and practice pertinent to the agency experience.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

**AMERICAN INDIAN STUDIES**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**AIS 101 Introduction to American Indian Studies I**

3 credit hours/ 3 periods (3 lec.)

Examination of the diversity of American Indian tribes. Includes origins and traditions, Native American cultures and geographic subsistence, women's roles and responsibilities, spirituality and world views, and values and value systems. Also includes early education, socialization, and importance of extended family, history of tribal sovereignty and governance, health and curing, and encounters and reactions with early Europeans.

Offered: Fall, Spring.

**AIS 102 Introduction to American Indian Studies II**

3 credit hours/ 3 periods (3 lec.)

Continuation of AIS 101. Includes traditional tribal governments, history of Indian-White relations and impact on tribal governments, American Indian status in White society, issues of tribal sovereignty and self-governance, and today's issues and topics.

Prerequisite(s): AIS 101.

Offered: May not be offered this year, check class schedule.

**ANTHROPOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ANT 101 Human Origins and Prehistory**

3 credit hours/ 3 periods (3 lec.)

Survey of physical anthropology and archaeology. Includes anthropology and its subfields, the development of evolutionary theory, modern human variation, primates, paleoanthropology and archaeology, and the emergence of the human species from its origins.

Information: Same as ARC 101.

Offered: Fall, Spring.

**ANT 102 Introduction to Cultural Anthropology and Linguistics**

3 credit hours/ 3 periods (3 lec.)

Survey of human societal structure. Includes sub-fields of anthropology, sub-disciplines and topics, historical origins, influences, key figures, theory and methods. Also includes an introduction to the comparative study of cultures.

Offered: Fall, Spring.

**ANT 105 Humanity and the Environment**

3 credit hours/ 3 periods (3 lec.)

Technical, sociocultural, and political information on environmental science and technology for non-ENV majors. Includes ecosystems, population impacts, hydrological systems, air pollution, and environmental toxins. Also includes current topics such as the green house effect, acid rain, drinking water contamination, toxic waste spills, governmental regulation and enforcement, and future environmental trends.

Corequisite(s): ANT 105LB

Information: Same as ENV 105.

Offered: Fall, Spring.

**ANT 105LB Humanity and the Environment Discovery Laboratory**

1 credit hour/ 3 periods (3 lab)

Laboratory exercise and field trip experiences as applied to the relationship between humanity and the environment. Includes examining ecology and biodiversity, healthy- carrying capacity models, and waste by-product and their sources. Also includes designing pollution prevention and sustainable campus/town models, developing increased environmental ethics in relationships to the environment.

Corequisite(s): ANT 105

Information: This laboratory course satisfies the fourth credit hour of the Biological and Physical Science general education transfer credit if taken along with ANT 105. Same as ENV 105LB.

Offered: Fall, Spring.

**ANT 110 Buried Cities and Lost Tribes**

3 credit hours/ 3 periods (3 lec.)

Exploration of the human past. Includes anthropology and its subfields, basics of archaeology, modern humans, origins of domestication, development of social complexity, ranked societies, and states around the world, and archaeology in the modern world.

Information: Same as ARC 110.

Offered: Fall, Spring, Summer.

**ANT 112 Exploring Non-Western Cultures**

3 credit hours/ 3 periods (3 lec.)

Anthropological survey of non-Western subsistence cultures. Includes development of the discipline of anthropology, research methods, non-Western subsistence cultures, central topics in cultural anthropology, and post-colonial and non-Western cultures in a global context. Also includes writing emphasis.

Offered: Fall, Spring, Summer.

**ANT 127 History & Culture of the Mexican-American in the Southwest**

3 credit hours/ 3 periods (3 lec.)

Historical survey of the Mexican / Chicano peoples from their indigenous origins in Meso-America and the Gran Chichimeca to the present in the United States. Includes Chicano historiography, movements north under Spain and Mexico, nineteenth century to 1880; repression and resistance, making of the Chicano worker to WWII, and toward the 21st century; struggles continue. Also includes the totality of Chicano life since the Treaty of Guadalupe Hidalgo and challenges into the 21st century.

Information: Same as HIS 127.

Offered: Fall, Spring.

**ANT 129 Culture and Personality**

3 credit hours/ 3 periods (3 lec.)

Survey of topics in psychological anthropology. Includes history of development of psychological anthropology, affective and cognitive approaches in psychological anthropology, key figures, influences, methods and models, limitations and criticisms of culture and personality studies, and examine sub-topics in culture and personality studies. Also includes a selection of ethnographic material from the United States and abroad and consideration of the influences of gender, ethnicity, class and other social variables on personality issues within cultures.

Offered: May not be offered this year, check class schedule.

**ANT 135 Pre-Columbian Art**

3 credit hours/ 3 periods (3 lec.)

Anthropological and art historical survey of the indigenous cultures of the Americas from the earliest times to the period of the Spanish conquest. Includes non-Western art and Western gaze, humanity in the Americas, art and architecture of the Pre-Columbian Andes, art and architecture of Pre-Columbian Mesoamerica, and North American indigenous art and architecture.

Information: Same as ART/HIS 135.

Offered: May not be offered this year, check class schedule.

**ANT 136 Masks**

3 credit hours/ 3 periods (3 lec.)

Anthropological and art historical study of masks and masquerade as an element of human culture. Includes masks and society, masks and ritual, masks and storytelling, and masks and gender. Also includes conceptual examination of global examples, and practical projects in mask construction.

Information: Same as ART 136.

Offered: May not be offered this year, check class schedule.

**ANT 148 History of Indians of North America**

3 credit hours/ 3 periods (3 lec.)

History of the cultural development of Native Americans of North America and the interrelations of cultures. Includes Native American origins, early economic and social development, Europeans, eras in Native American history, modern leadership, and research studies.

Information: Same as HIS 148

Offered: Fall, Spring.

**ANT 150 African-American History and Peoples**

3 credit hours/ 3 periods (3 lec.)

African-American history from the colonial period to the present. Includes identity, double consciousness, culture and arts, and political protest.

Information: Same as HIS 150.

Offered: May not be offered this year, check class schedule.

**ANT 180 Artifact Identification: Tucson Basin**

2 credit hours/ 2 periods (2 lec.)

Introduction to recognition, identification, and classification of the various types of artifacts recovered from local archaeological sites. Includes an overview of prehistoric ceramics in the Tucson Basin, chipped stone technology, ground stone tool identification, and miscellaneous artifacts. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

Information: Same as ARC 180.

Offered: May not be offered this year, check class schedule.

**ANT 200 Biological Anthropology**

3 credit hours/ 5 periods (2 lec., 3 lab)

Interaction of human biology and culture. Includes biological anthropology as natural and social sciences, human genetics, microevolution, macroevolution, human variability, the human phenotype, health, disease, and epidemiology, demography of human populations, and population biology and genetics. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

*Prerequisite(s):* ANT/ARC 101.

Information: Completion of ANT/ARC 101 or consent of instructor is required before enrolling in this course. Same as ARC 200.

Offered: May not be offered this year, check class schedule.

**ANT 202 Sex, Gender, and Culture**

3 credit hours/ 3 periods (3 lec.)

Anthropological examination of gender identity, roles, relations, and variation. Includes theories and methods of the anthropology of sex and gender, historical origins and development of the sub-discipline, and sex, gender and sexuality in cross-cultural, ethnographic perspective. Also includes selected case studies and cross-cultural frameworks for analysis.

Offered: Fall, Spring.

**ANT 203 Ethnic Groups and Culture**

3 credit hours/ 3 periods (3 lec.)

Anthropological survey of ethnicity and culture. Includes introduction to ethnicity studies, ethnic group formation and maintenance, larger social and cultural context, ethnicity and other social variables, cultural context, change and globalization, and selected case studies.

Offered: May not be offered this year, check class schedule.

**ANT 205 Introduction to Southwestern Prehistory**

3 credit hours/ 3 periods (3 lec.)

Study of the prehistory of the American Southwest from its earliest inhabitants to European contact. Includes anthropology and its subfields, basics of archaeology, the Southwest, Paleo-Indians, Archaic people, Hohokam, Mogollon, Anasazi, and other Southwestern cultures, and late prehistoric and historic cultural change.

Information: Same as ARC 205.

Offered: Fall, Spring.

**ANT 206 Contemporary Native Americans of the Southwest**

3 credit hours/ 3 periods (3 lec.)

Survey of Native American cultures with emphasis on peoples of the Southwestern United States and Northern Mexico. Includes overview of Native groups in the Southwestern United States and northern Mexico, environmental zones and modes of production, cultural and linguistic diversity, cultural configurations, Pan-Native American issues, and frameworks for understanding Native American culture and experience.

Offered: Fall, Spring, Summer.

**ANT 210 Cultural Anthropology**

3 credit hours/ 3 periods (3 lec.)

Exploration of the study of culture. Includes scientific and humanistic legacies of cultural anthropology, effects of paradigms on research focus and findings, survey of models for analysis, ethnographic studies, and evaluation of models and styles in anthropology.

*Prerequisite(s):* ANT 102.

Offered: Spring.

**ANT 215 The Nature of Language**

3 credit hours/ 3 periods (3 lec.)

Introduction to anthropological linguistics. Includes the history of linguistics, descriptive linguistics, sociolinguistics, language and culture, and language and biology. Also includes language acquisition, language and education, and the history of language and writing.

Offered: Fall, Spring.

**ANT 225 Principles of Archaeology**

3 credit hours/ 4 periods (2.5 lec., 1.5 lab)

Survey of the concepts and methods which archaeologists use to reconstruct human prehistory. Includes a history of archaeology, method and techniques of archaeological excavation, surveying and mapping, dating, sampling and statistical methods, archaeological analysis, and a synthesis of archaeological data. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

*Prerequisite(s):* ANT/ARC 101.

Information: Completion of ANT/ARC 101 or consent of instructor is required before enrolling in this course. Same as ARC 225.

Offered: Fall.

**ANT 250 Archaeology Laboratory**

4 credit hours/ 6 periods (3 lec., 3 lab)

Laboratory experience in the curating, processing and analysis of artifacts recovered from archaeological sites. Includes human osteology, zooarchaeology, lithic analysis, prehistoric ceramics, shells, historic artifacts, and usage of the Archaeology Centre.

Information: Same as ARC 250, ANT/ARC 101, ARC 180, or consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ANT 265 Mapping Concepts**

1 credit hour/ 1 period (1 lec.)

Introduction to the practical use of maps. Includes map basics and attributes, scales and measurements, direction, geographic coordinate systems, relief and contours, and aerial photography.

Information: Same as ARC/GEO 265.

Offered: May not be offered this year, check class schedule.

**ANT 267 Introduction to Geographic Information Systems**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the technology of geographic information systems. Includes the evolution of technology, system components, database concepts, applications, and implementation.

*Prerequisite(s):* ANT/ARC/GEO 265 or concurrent enrollment.

Information: Basic computer skills are required before enrolling in this course. Same as ARC/GEO 267.

Offered: May not be offered this year, check class schedule.

**ANT 275 Archaeological Excavation I**

4 credit hours/ 8 periods (2 lec., 6 lab)

Introduction to the techniques of archaeological mapping, excavation and recording. Includes field experience in southern Arizona. Also includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

Information: Same as ARC 275.

Offered: May not be offered this year, check class schedule.

**ANT 276 Archaeological Surveying I**

4 credit hours/ 8 periods (2 lec., 6 lab)

Techniques and methods for recognizing, locating and recording archaeological sites. Includes exploration methods, issues of cultural resource management, instrument skills, map use, and remote sensing applications. Also includes natural resources associated with archaeological sites, application of field techniques, and documentation.

*Prerequisite(s):* ANT/ARC 180 or concurrent enrollment.

*Recommendation:* Consult instructor for alternative prerequisites before enrolling in this course.

Information: Same as ARC 276.

Offered: May not be offered this year, check class schedule.

**ANT 277 Archaeological Excavation II**

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of ANT/ARC 275. Includes advanced excavation techniques, field crew supervision, and selected field projects. Also includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

*Prerequisite(s):* ANT/ARC 205 and ANT/ARC 265 or concurrent enrollment, ANT/ARC 275, and GLG 101.

*Recommendation:* Consult instructor for alternative prerequisites before enrolling in this course.

Information: Same as ARC 277.

Offered: May not be offered this year, check class schedule.

**ANT 278 Archaeological Surveying II**

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of ANT/ARC 276. Includes goals and objectives of archaeological exploration, archival investigation, planning field projects, and computer resources.

*Prerequisite(s):* ANT/ARC 205 and ANT/ARC 265 or concurrent enrollment, ANT/ARC 276, and GLG 101.

*Recommendation:* Consult instructor for alternative prerequisites before enrolling in this course.

Information: Same as ARC 278.

Offered: May not be offered this year, check class schedule.

**ANT 281 Global Positioning Systems**

2 credit hours/ 2 periods (2 lec.)

Introduction to the use of Global Positioning Systems (GPS) receivers in a field setting for non-technical applications. Includes GPS operation, field data, and software packages and programs. Also includes using museum collections, equipment, resources, and facilities of the Archaeological Centre.

Information: Same as ARC 281.

Offered: May not be offered this year, check class schedule.

**ANT 284 Computer Cartography and CAD**

3 credit hours/ 5 periods (2 lec., 3 lab)

Cartographic techniques and hardware for computer generation of maps. Includes an introduction, methods and techniques, and application projects.

*Prerequisite(s):* ANT/ARC 265 or concurrent enrollment, and CSA 101.

Information: Same as ARC/GEO 284.

Offered: May not be offered this year, check class schedule.

**ANT 286 Electronic and Digital Field Mapping**

4 credit hours/ 8 periods (2 lec., 6 lab)

Overview of the creation of electronic and digital maps in a field setting. Includes instrument operation, field data, producing maps, and computer applications.

*Prerequisite(s):* ANT/ARC 265, 281.

*Recommendation:* Consult instructor for alternative prerequisite(s).

Information: Same as ARC 286.

Offered: May not be offered this year, check class schedule.

**ANT 295 Field Projects**

3 credit hours/ 9 periods (9 lab)

Participation in a field project in one of the subfields of anthropology.

Information: Same as ARC 295. Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ANT 296 Independent Studies in ANT/ARC**

.5-3 credit hours/ 1.5-9 periods (1.5-9 lab)

Students independently continue their studies in anthropology under the supervision of a faculty member.

Information: May be taken three times for a maximum of nine credit hours. Same as ARC 296. Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

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**APACHE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**APC 101 Apache Language I**

4 credit hours/ 4 periods (4 lec.)

An introduction to the Apache language and culture. Includes reading, writing and conversational skills, speech patterns, grammar and usage and listening comprehension skills. Also includes vocabulary development and an overview of the Apache culture.

Offered: May not be offered this year, check class schedule.

**APC 102 Apache Language II**

4 credit hours/ 4 periods (4 lec.)

Continuation of Apache Language I. Includes increased proficiency and development of the skills in pronunciation speaking and conversing, understanding, reading and writing the language. Also includes vocabulary development and an overview of the Apache traditional culture.

*Prerequisite(s):* APC 101.

Offered: May not be offered this year, check class schedule.

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**ARABIC**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ARB 101 Elementary Modern Standard Arabic I**

5 credit hours/ 5 periods (5 lec.)

Introduction to modern standard Arabic language. Includes an overview of the modern standard Arabic language, speaking, listening, reading, writing, grammar, interpersonal transactions and cultural contexts.

Offered: Fall.

**ARB 102 Elementary Modern Standard Arabic II**

5 credit hours/ 5 periods (5 lec.)

Continuation of ARB 101. Includes additional uses of Modern Standard Arabic alphabet, Arabic sound system, grammatical structures, interpersonal transactions and protocols, and cultural contexts.

*Prerequisite(s):* ARB 101.

Offered: Spring.

**ARB 106 Beginning Conversation**

4 credit hours/ 4 periods (4 lec.)

Introduction to conversation Arabic. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and cultural perspectives. Also includes speaking and listening skills with primary emphasis on oral communication.

Offered: Summer.

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**ARCHAEOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ARC 060 Artifacts and Sites of Tucson**

.5 credit hours/ .5 periods (.5 lec.)

Overview of the artifacts and archaeological sites of the Tucson Basin. Includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

Information: Field trip is part of the course.

Offered: Spring.

**ARC 061 Tucson Prehistory**

.5 credit hours/ .5 periods (.5 lec.)

Overview of the prehistoric cultures of the Tucson Basin. Includes museum collections, equipment, resources and facilities of the Archaeology Centre.

Offered: Spring.

**ARC 062 Stone Tool Making**

.5 credit hours/ .5 periods (.5 lec.)

Introduction to the production of chipped stone tools. Includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

Offered: Spring.

**ARC 063 Prehistoric Pottery Making**

.5 credit hours/ .5 periods (.5 lec.)

Introduction to the making of pottery employing techniques used by the prehistoric inhabitants of the Tucson Basin. Includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

Offered: May not be offered this year, check class schedule.

**ARC 075 Field Archaeology**

4 credit hours/ 8 periods (2 lec., 6 lab)

Participation in archaeological field activities. Includes a non-technical approach with an emphasis on local field work. Also includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

Offered: May not be offered this year, check class schedule.

**ARC 093 Archaeology Workshop**

.5-3 credit hours/ .5-3 periods (.5-3 lec.)

Workshop with an emphasis on field and lab techniques. Includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

Offered: May not be offered this year, check class schedule.

**ARC 101 Human Origins and Prehistory**

3 credit hours/ 3 periods (3 lec.)

Survey of physical anthropology and archaeology. Includes anthropology and its subfields, the development of evolutionary theory, modern human variation, primates, paleoanthropology and archaeology, and the emergence of the human species from its origins.

Information: Same as ANT 101.

Offered: Fall, Spring.

**ARC 110 Buried Cities and Lost Tribes**

3 credit hours/ 3 periods (3 lec.)

Exploration of the human past. Includes anthropology and its subfields, basics of archaeology, modern humans, origins of domestication, development of social complexity, ranked societies, and states around the world, and archaeology in the modern world.

Information: Same as ANT 110.

Offered: Fall, Spring.

**ARC 180 Artifact Identification: Tucson**

2 credit hours/ 2 periods (2 lec.)

Artifact Identification: Tucson Basin Introduction to the recognition, identification, and classification of the various types of artifacts recovered from local archaeological sites. Includes an overview of prehistoric ceramics in the Tucson Basin, chipped stone technology, ground stone tool identification, and miscellaneous artifacts. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

Information: Same as ANT 180.

Offered: Spring.



**ARC 200 Biological Anthropology**

3 credit hours/ 5 periods (2 lec., 3 lab)

Interaction of human biology and culture. Includes biological anthropology as natural and social sciences, human genetics, microevolution, macroevolution, human variability, the human phenotype, health, disease, and epidemiology, demography of human populations, and population biology and genetics. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

Prerequisite(s): ANT/ARC 101.

Information: Completion of ANT/ARC 101 or consent of instructor is required before enrolling in this course. Same as ANT 200.

Offered: May not be offered this year, check class schedule.

**ARC 205 Introduction to Southwestern Prehistory**

3 credit hours/ 3 periods (3 lec.)

Study of the prehistory of the American Southwest from its earliest inhabitants to European contact. Includes anthropology and its subfields, basics of archaeology, the Southwest, Paleo-Indians, Archaic people, Hohokam, Mogollon, Anasazi, and other Southwestern cultures, and late prehistoric and historic cultural change.

Information: Same as ANT 205.

Offered: Fall, Spring.

**ARC 225 Principles of Archaeology**

3 credit hours/ 4 periods (2.5 lec., 1.5 lab)

Survey of the concepts and methods which archaeologists use to reconstruct human prehistory. Includes a history of archaeology, method and techniques of archaeological excavation, surveying and mapping, dating, sampling and statistical methods, archaeological analysis, and a synthesis of archaeological data. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

Prerequisite(s): ARC/ANT 101.

Information: Completion of ARC/ANT 101 or consent of instructor is required before enrolling in this course. Same as ANT 225.

Offered: Fall.

**ARC 250 Archaeology Laboratory**

4 credit hours/ 6 periods (3 lec., 3 lab)

Laboratory experience in the curating, processing and analysis of artifacts recovered from archaeological sites. Includes human osteology, zooarchaeology, lithic analysis, prehistoric ceramics, shells, historic artifacts, and usage of the Archaeology Centre.

Prerequisite(s): ANT/ARC 101, ARC 180.

Information: Prerequisites may be waived with consent of instructor. Same as ANT 250.

Offered: Spring.

**ARC 265 Mapping Concepts**

1 credit hour/ 1 period (1 lec.)

Introduction to the practical use of maps. Includes map basics and attributes, scales and measurements, direction, geographic coordinate systems, relief and contours, and aerial photography.

Information: Same as ANT/GEO 265.

Offered: Fall, Spring.

**ARC 267 Introduction to Geographic Information Systems**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the technology of geographic information systems. Includes the evolution of technology, system components, database concepts, applications, and implementation.

Prerequisite(s): ANT/ARC/GEO 265 or concurrent enrollment.Recommendation: Basic computer skills before enrolling in this course.

Information: Same as ANT/GEO 267.

Offered: May not be offered this year, check class schedule.

**ARC 270 Archaeological Materials**

1 credit hour/ 1 period (1 lec.)

The handling, processing and curation of the materials acquired during field work as well as the information derived from them. Includes using museum collections, equipment, resources and facilities of the Archaeological Centre.

Corequisite(s): ANT/ARC 275 or 276.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**ARC 275 Archaeological Excavation I**

4 credit hours/ 8 periods (2 lec., 6 lab)

Introduction to the techniques of archaeological mapping, excavation and recording. Includes field experience in southern Arizona. Also includes using museum collections, equipment, resources and facilities of the Archaeological Centre.

Information: Same as ANT 275.

Offered: Fall.

**ARC 276 Archaeological Surveying I**

4 credit hours/ 8 periods (2 lec., 6 lab)

Techniques and methods for recognizing, locating and recording archaeological sites. Includes exploration methods, issues of cultural resource management, instrument skills, map use, and remote sensing application. Also includes natural resources associated with archaeological sites, application of field techniques, and documentation.

Prerequisite(s): ANT/ARC 180 or concurrent enrollment.Recommendation: Consult instructor for alternative prerequisites.

Information: Same as ANT 276.

Offered: Spring.

**ARC 277 Archaeological Excavation II**

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of ARC/ANT 275. Includes advanced excavation techniques, field crew supervision, and selected field projects. Also includes using museum collections, equipment, resources and facilities of the Archaeology Centre.

Prerequisite(s): ANT/ARC 205 and ANT/ARC 265 or concurrent enrollment, ANT/ARC 275 and GLG 101.Recommendation: Consult instructor for alternative prerequisites before enrolling in this course.

Information: Same as ARC 277.

Offered: Fall.

**ARC 278 Archaeological Surveying II**

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of ARC/ANT 276. Includes goals and objectives of archaeological exploration, archival investigation, planning field projects, and computer resources.

Prerequisite(s): ANT/ARC 205 and ANT/ARC 265 or concurrent enrollment, ANT/ARC 276, and GLG 101.Recommendation: Consult instructor for alternative prerequisites before enrolling in this course.

Information: Same as ANT 278.

Offered: May not be offered this year, check class schedule.

**ARC 281 Global Positioning Systems**

2 credit hours/ 2 periods (2 lec.)

Introduction to the use of Global Positioning Systems (GPS) receivers in a field setting for non-technical applications. Includes GPS operation, field data, and software packages and programs. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

Information: Same as ANT 281.

Offered: Fall.

**ARC 284 Computer Cartography and CAD**

3 credit hours/ 5 periods (2 lec., 3 lab)

Cartographic techniques and hardware for computer generation of maps. Includes an introduction, methods and techniques, and application projects.

Prerequisite(s): ARC/ANT 265 or concurrent enrollment, and CSA 101.

Information: Same as ANT/GEO 284.

Offered: May not be offered this year, check class schedule.

**ARC 286 Electronic and Digital Field Mapping**

4 credit hours/ 8 periods (2 lec., 6 lab)

Overview of the creation of electronic and digital maps in a field setting. Includes introduction, instrument operation, field data, producing maps, and computer applications.

Prerequisite(s): ARC/ANT 265, 281.Recommendation: Consult instructor for alternative prerequisite(s).

Information: Same as ANT 286.

Offered: Spring.

**ARC 295 Field Projects**

3 credit hours/ 9 periods (9 lab)

Participation in a field project in one of the subfields of anthropology.

Information: Same as ANT 295. Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ARC 296 Independent Studies in ANT/ARC**

.5-3 credit hours/ 1.5-9 periods (1.5-9 lab)

Students independently continue their studies in anthropology under the supervision of a faculty member.

Information: Consent of instructor is required before enrolling in this course. May be taken three times for a maximum of nine credit hours. Same as ANT 296.

Offered: Summer.



## ART

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### ART 100 Basic Design

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the elements and principles of visual design. Includes line, shape, space, value, texture, volume and color. Also includes skill development in organizing these elements and applying the visual principles of harmony, variety, balance, tension, rhythm, proportion, repetition, and contrast. Offered: Fall, Spring, Summer.

### ART 105 Understanding Art

3 credit hours/ 3 periods (3 lec.)

Introduction to the visual arts. Includes the exploration of aesthetic theory, art history, art criticism, and studio production. Also includes art theory, slide and digital exploration of major periods in World Art, studio activities, and visits to local art museums.

Offered: Fall, Spring, Summer.

### ART 106 History of Painting Materials and Techniques

3 credit hours/ 5 periods (2 lec., 3 lab)

Technical investigation of prominent painting methods from Ancient Greece to the present. Includes encaustic technique, tempera technique, glaze technique, alla prima technique, and watercolor technique. Also includes preparation of grounds, media, and underpainting.

Offered: Spring.

### ART 108 Mexican/Chicano Mural Painting

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to and application of the principles of Mexican mural painting. Includes historical and contemporary events that influenced the birth and development of mural art, prominent muralists in Europe, Mexico and the United States that influenced and define the Chicano mural movement, Chicano mural painting in the United States, research and development for student mural project, and creating a portable mural.

Offered: Fall, Spring.

### ART 110 Drawing I

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to drawing. Includes use of graphic media: pencil, charcoal, and ink on paper. Also includes elements of design as applied to representational drawing.

Prerequisite(s): ART 100.

Information: Prerequisites may be waived with consent of instructor.

Offered: Fall, Spring, Summer.

### ART 115 Color and Composition

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to recognizing color principles and relationships and analyzing and duplicating colors. Includes creating the illusion of dimension, transparency, and luminosity in original design. Also includes the use of a variety of materials.

Recommendation: Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring.

### ART 120 Sculptural Design

3 credit hours/ 5 periods (2 lec., 3 lab)

Extension of design into three-dimensional concepts and media. Focuses on the study of volume and spatial relationships through modeling, casting, carving and construction. Includes elements of color, texture and line as applied to three-dimensional design.

Recommendation: Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring, Summer.

### ART 121 Figure Sculpture

3 credit hours/ 6 periods (3 lec., 3 lab)

Beginning modeling techniques using clay and other media, while working from the live model. Includes visual literacy and critical analysis, range of media, approaches to figurative sculpture, technical understanding in working from live models, content, and safety.

Recommendation: Completion of ART 120 before enrolling in this course.

Information: There may be additional supply costs in addition to course fees.

Offered: Spring.

### ART 123 Lost Wax Sculpture Casting

2 credit hours/ 4 periods (1 lec., 3 lab)

Introduction to metal casting of sculpture with emphasis on the ceramic shell method of mold making. Includes wax working, spewing, mold making, casting in bronze and aluminum, and finishing metal castings.

Recommendation: Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring.

### ART 128 Digital Photography I

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to digital photography as an art form with an emphasis on fundamental techniques of the digital camera and the digital darkroom. Includes digital cameras with manual functions, digital darkroom, digital printing, studio lighting, image composition, portfolio development, and critical analysis. Also includes the use of state-of-the-art professional quality computers and image processing software, professional digital cameras and printers, and a lighting studio with professional lighting equipment.

Recommendation: Completion of DAR 051 or experience in computer skills before enrolling in this course.

Information: Same as DAR 128. Students are strongly recommended to own or have access to a digital camera with manual exposure control and access to a computer with image processing software. Cameras and professional quality computers and software will be provided during the course. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees.

Offered: Fall, Spring.

### ART 130 Art and Culture: Prehistoric Through Gothic

3 credit hours/ 3 periods (3 lec.)

Slide and lecture discussions of western civilization's major contributions to the development of sculpture, painting, and architecture. Includes a survey from prehistoric through Gothic art.

Offered: Fall, Spring, Summer.

### ART 131 Art and Culture: Late Gothic Through Modern Periods

3 credit hours/ 3 periods (3 lec.)

Continuation of ART 130. Includes western civilization's major contribution to the development of sculpture, painting, and architecture from the renaissance into the twentieth century.

Offered: Fall, Spring, Summer.

### ART 132 Modern Art Survey

3 credit hours/ 3 periods (3 lec.)

Survey of modern art trends in painting, sculpture, and architecture from the middle 19th century to recent times. Includes slide and lecture discussions which will emphasize both formal and contextual aspects of art works.

Offered: May not be offered this year, check class schedule.

### ART 133 Art in America

3 credit hours/ 3 periods (3 lec.)

Introductory survey of American art from the colonial period to the present. Includes emphasis on American painting, sculpture, decorative arts, and architecture as well as European influences. Also includes folk art, crafts, art of under-represented Americans, and issues surrounding cultural production.

Offered: May not be offered this year, check class schedule.

### ART 135 Pre-Columbian Art

3 credit hours/ 3 periods (3 lec.)

Anthropological and art historical survey of the indigenous cultures of the Americas from the earliest times to the period of the Spanish conquest. Includes non-Western art and Western gaze, humanity in the Americas, art and architecture of the Pre-Columbian Andes, art and architecture of Pre-Columbian Mesoamerica, and North American indigenous art and architecture.

Information: Same as ANT/HIS 135.

Offered: May not be offered this year, check class schedule.

### ART 136 Masks

3 credit hours/ 3 periods (3 lec.)

Anthropological and art historical study of masks and masquerade as an element of human culture. Includes masks and society, masks and ritual, masks and storytelling, and masks and gender. Also includes conceptual examination of global examples, and practical projects in mask construction.

Information: Same as ANT 136.

Offered: May not be offered this year, check class schedule.

### ART 140 Photography I

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to black and white photography as an art form with an emphasis of fundamental technique of the camera and darkroom. Includes film development, printing, beginning portfolio development and historical content.

Recommendation: Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring, Summer.

### ART 141 Photography II

3 credit hours/ 5 periods (2 lec., 3 lab)

Principles and processes of intermediate black and white photography. Includes use of various types of camera formats, development of film, creating a series, individual darkroom space, advanced darkroom techniques, portfolio production, exhibition presentation, copy slide production, and verbalization of visual perceptions.

Prerequisite(s): ART 140.

Information: Student is required to submit a portfolio for review.

Offered: Fall, Spring.

**ART 143 Commercial Photography**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to principles and practices of photography as a business. Includes materials, equipment, facilities, and technologies. Also includes both traditional and digital methods.

Prerequisite(s): ART 141.

Offered: Spring.

**ART 147 Alternative Processes in Photography**

3 credit hours/ 5 periods (2 lec., 3 lab)

Designed for the advanced photographer/digital image maker interested in expanding knowledge of alternative photographic processes. Includes bridging 19th century with 21st century processes via digital technologies and mid-1800 printing methods.

Recommendation: Completion of ART 100 and advanced darkroom and computer experience before enrolling in this course.

Offered: Fall, Spring.

**ART 160 Ceramics I**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to ceramics. Includes wheel and hand-built forms and basic glazing techniques.

Recommendation: Completion of ART 100 before enrolling in this course or concurrent enrollment.

Offered: Fall, Spring, Summer.

**ART 170 Metalwork I: Jewelry**

3 credit hours/ 5 periods (2 lec., 3 lab)

Exploration of the basic techniques and design approaches used in the fabrication of jewelry and other metalwork. Includes construction, casting, forming, surface embellishment, and other techniques.

Prerequisite(s): ART 100.

Offered: Fall, Spring.

**ART 175 Ferrous Metalwork: Blacksmithing, Tool Making/Knife Making**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to design, layout, materials, fuels, forge making and practices. Includes hot-working ferrous metals, heat treating and finishing processes as well as the design and techniques involved in tool construction. Also includes the essential processes used in knife making.

Prerequisite(s): ART 100.

Information: Prerequisites may be waived with consent of instructor.

Offered: Fall, Spring.

**ART 175A Ferrous Metalwork: General Blacksmithing**

1 credit hour/ 1.7 periods (.7 lec., 1 lab)

Introduction to design, layout, materials, fuels, forge making and practices. Includes hot-working ferrous metals, heat treating and finishing processes.

Prerequisite(s): ART 100.

Information: Prerequisites may be waived with consent of instructor. ART 175A, 175B, and 175C together constitute ART 175.

Offered: May not be offered this year, check class schedule.

**ART 175B Ferrous Metalwork: Tool Making**

1 credit hour/ 1.7 periods (.7 lec., 1 lab)

Continuation of ART 175A. Includes emphasis on the design and techniques involved in tool construction.

Prerequisite(s): ART 175A.

Information: Prerequisites may be waived with consent of instructor. ART 175A, 175B, and 175C together constitute ART 175.

Offered: May not be offered this year, check class schedule.

**ART 175C Ferrous Metalwork: Knife Making**

1 credit hour/ 1.7 periods (.7 lec., 1 lab)

Introduction to essential processes used in knife making. Includes design, layout, materials, blade reduction, forging, heat treating, and finishing.

Prerequisite(s): ART 100.

Recommendation: Completion of ART 175A and 175B before enrolling in this course.

Information: Prerequisites may be waived with consent of instructor. ART 175A, 175B, and 175C together constitute ART 175.

Offered: May not be offered this year, check class schedule.

**ART 180 Weaving I: Four-Harness Loom**

3 credit hours/ 5 periods (2 lec., 3 lab)

Weaving on a four-harness loom. Includes projects involving color, texture, pattern, and the use of tabby, twill, tubular, textural, and tapestry weaves in the creation of clothing and fiber art.

Recommendation: Completion of ART 100 before enrolling in this course.

Offered: Fall.

**ART 181 Mixed Media Fibers**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to fiber as an art medium. Includes fiber processes such as basketry, crochet, macrame, plaiting, surface design, and mixed media.

Recommendation: Completion of ART 100 before enrolling in this course.

Offered: Spring.

**ART 203 Survey of Contemporary Studio Art**

3 credit hours/ 3 periods (3 lec.)

Introduction to the history, theory, and issues of contemporary studio arts practices. Includes stylistic movements, presentations and demonstrations by faculty addressing current issues and techniques, marketing and funding, visual culture, introduction to postmodernist art theory, and shifting display modalities.

Recommendation: Completion of WRT 100 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ART 210 Drawing II**

3 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 110. Includes further development of imaginative and technical skills in the use of space and graphic design. Also includes the development of a portfolio of finished drawings.

Prerequisite(s): ART 110.

Offered: Fall, Spring.

**ART 212 Printmaking I**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to basic aesthetics and techniques of printmaking. Includes intaglio etching, relief printing, and monotypes.

Prerequisite(s): ART 100.

Information: Prerequisites may be waived with consent of instructor.

Offered: Fall, Spring.

**ART 213 Life Drawing**

3 credit hours/ 5 periods (2 lec., 3 lab)

Drawing the human figure using the two-dimension concept as a graphic vehicle of expression. Includes opportunities to work in various media.

Prerequisite(s): ART 100.

Recommendation: Completion of ART 110 before enrolling in this course.

Offered: Fall, Spring.

**ART 214 Printmaking II**

3 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 212. Includes advanced problems in aesthetics and techniques of intaglio etching, relief printing, and monotypes. Also includes an introduction to alternative, non-traditional approaches.

Prerequisite(s): ART 212.

Offered: Spring.

**ART 215 Painting I**

3 credit hours/ 5 periods (2 lec., 3 lab)

Studio course in beginning oil painting. Includes still-life object painting, landscape and figure studies. Also includes palette-mixing technique and stretcher bar building.

Prerequisite(s): ART 110.

Recommendation: Completion of ART 115 before enrolling in this course.

Offered: Fall, Spring, Summer.

**ART 216 Screenprinting I**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to screenprinting using water base and inks. Includes screen construction, the use of cut film, photo emulsion, stencil making techniques, printing techniques, and one-color and multi-color process work.

Prerequisite(s): ART 100.

Information: Prerequisites may be waived with consent of instructor.

Offered: Fall, Spring.

**ART 217 Painting II**

3 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 215. Includes advanced principles and practice of painting techniques. Also includes mixed media, the art market, and contemporary painting methods.

Prerequisite(s): ART 115, and 215.

Offered: Spring.

**ART 218 Screenprinting II**

3 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 216. Advanced work in blockout, cut film, photo emulsion, photo film, and experimental stencil-making techniques.

Prerequisite(s): ART 216.

Information: Students may select areas of interest for concentration and refinement of skills.

Offered: Fall, Spring.

**ART 219 Printmaking III**

3 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 214. Includes non-traditional approaches to printmaking such as monotypes, planographic, or mixed media processes. Also involves advanced problems in traditional intaglio etching.

Prerequisite(s): ART 214.

Offered: Spring.

**ART 220 Sculpture**

3 credit hours/ 6 periods (3 lec., 3 lab)

Exploration of methods, materials and content used in sculpture. Include modeling, casting, metal forming, construction techniques and carving. Also includes varied materials such as plaster, clay, cement, bronze, aluminum, steel, copper, wood, plastics, wax and mixed media.

Prerequisite(s): ART 120.

Information: Prerequisites may be waived with consent of instructor.

Offered: Spring.

**ART 230 History of Photography**

3 credit hours/ 3 periods (3 lec.)

Introduction to the history of photography from 1839 to contemporary schools. Includes development of the technical aspects of photography, styles, movements and its relationship to artistic and cultural heritage.

Offered: Spring.

**ART 232 Digital Photography II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of ART/DAR 128. Includes intermediate digital cameras with manual functions, intermediate digital darkroom and digital output, quality of light, intermediate image composition, multiple images, intermediate portfolio development, and critical analysis. Also includes the intermediate use of state-of-the-art professional quality computers and image processing software, professional digital cameras, printers, and a lighting studio with professional lighting equipment.

Prerequisite(s): ART/DAR 128.

Recommendation: Completion of DAR 221 before enrolling in this course.

Information: Same as DAR 232. Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. Cameras and professional quality computers and software will be provided during the course. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. The prerequisite may be waived for basic skills in digital photography. See a ART/DAR digital photography instructor for prerequisite information.

Offered: Spring.

**ART 233 Digital Photography III**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of ART/DAR 232. Includes digital capture and image acquisition, advanced digital darkroom and digital output, advanced image composition, advanced multiple images integration, advanced portfolio development, and advanced critical analysis. Also includes the advanced use of state-of-the-art professional quality computers and image processing software, professional digital cameras, scanners, printers, and projectors.

Prerequisite(s): ART/DAR 232 and DAR 221.

Information: Same as DAR 233. Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. Cameras and professional quality computers and software will be provided during the course. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. The prerequisite may be waived for basic skills in digital photography. See the ART/DAR instructor for prerequisite information.

Offered: Spring.

**ART 250 Gallery and Museum Practices**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to practices and procedures of galleries and museums. Includes management of student gallery spaces on campus. Also includes community involvement with local business.

Recommendation: Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring.

**ART 260 Ceramics II**

3 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 160. Includes further development of wheel thrown and hand-built forms, glaze composition, and application techniques.

Prerequisite(s): ART 160.

Offered: Fall, Spring, Summer.

**ART 261 Ceramics III**

3 credit hours/ 5 periods (2 lec., 3 lab)

Advanced study for students who demonstrate mastery of ceramics skills and principles taught in ART 160 and 260. Includes clay composition, glaze calculation, and advanced design problems.

Prerequisite(s): ART 260.

Offered: Fall, Spring.

**ART 262 Ceramics IV**

3 credit hours/ 5 periods (2 lec., 3 lab)

Advanced study for students who wish to design ceramic projects that would fit into an architectural setting. Includes the exploration of creative processes and the use of different approaches, materials, and technology to achieve design goals.

Prerequisite(s): ART 261.

Offered: Fall, Spring.

**ART 265 Furnace Glassblowing I**

4 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the elements, tools, and basic principles of furnace glassblowing. Includes the discipline of working hot glass associated with the Venetian style, or off hand glassblowing. Also includes molten glass manipulated with long blow pipes, rods, and other specialized tools, basic skill development in the manipulation of hot glass, procedures and precautions with a focus on artistic development and design.

Prerequisite(s): ART 100.

Information: This course requires a special fee. Please contact the Art Department at the West Campus for further information.

Offered: Fall, Spring.

**ART 266 Furnace Glassblowing II**

4 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 265. Includes further information on the elements, tools and principles of furnace glassblowing, continued skill development in the manipulation of hot glass, procedures and precautions, with an emphasis on artistic development and design. Also includes skill development and organization of steps, design elements, and procedures.

Prerequisite(s): ART 265.

Information: This course requires a special fee. Please contact the Art Department at the West Campus for further information.

Offered: Fall, Spring.

**ART 270 Metalwork II: Jewelry**

3 credit hours/ 5 periods (2 lec., 3 lab)

Jewelry design and production techniques. Includes casting, construction, cold forging, and stone setting in precious and non-precious metals.

Prerequisite(s): ART 170.

Offered: Spring.

**ART 271 Metalwork II: Smithing and Casting**

3 credit hours/ 5 periods (2 lec., 3 lab)

Design and production of aesthetic and functional objects. Includes hot and cold forging, raising, forming, and casting using various metals such as copper, silver, bronze, steel, iron, and aluminum.

Prerequisite(s): ART 170.

Offered: Spring.

**ART 280 Weaving II**

3 credit hours/ 5 periods (2 lec., 3 lab)

Continuation of ART 180. Includes advanced study for students experienced on multi-harness looms. Students may select areas of interest for in-depth exploration.

Prerequisite(s): ART 180.

Recommendation: Completion of ART 100 is recommended before enrolling in this course.

Information: May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 296I1 Independent Study in ART: Art History**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in art history. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 296I2 Independent Study in ART: Ceramics**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in ceramics. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 296I3 Independent Study in ART: Metals**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in metals. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.



**ART 29614 Independent Study in ART: Painting, Drawing and Design**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in painting, drawing, and design. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 29615 Independent Study in ART: Photography**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in photography. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 29616 Independent Study in ART: Printmaking**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in printmaking. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 29617 Independent Study in ART: Sculpture**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in sculpture. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 29618 Independent Study in ART: Fibers**

1-3 credit hours/ 1.5-5 periods (.5-2 lec., 1-3 lab)

Advanced projects in fibers. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 29619 Independent Study in ART: Glass**

1-4 credit hours/ 1.5-9 periods (.5-3 lec., 1-6 lab)

Advanced projects in glass. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of sixteen credit hours.

Offered: Fall, Spring.

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**ART FOR PERSONAL DEVELOPMENT**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**APD 050 Photography**

2 credit hours/ 4 periods (1 lec., 3 lab)

Introduction to black and white photography for personal use. Includes history of photography, introduction to the camera, principles of film, and darkroom orientation.

Offered: May not be offered this year, check class schedule.

**APD 062 Acrylic and Oil Painting I**

2 credit hours/ 4 periods (1 lec., 3 lab)

Introduction to oil and acrylic painting. Includes painting preparation, composing and building paintings, and developing a personal vision.

Offered: Fall, Spring.

**APD 063 Acrylic and Oil Painting II**

2 credit hours/ 4 periods (1 lec., 3 lab)

Intermediate painting for further development of the techniques. Includes review of painting preparation, intermediate composing and building paintings, and intermediate development of a personal vision.

Recommendation: Completion of APD 062 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**APD 064 Acrylic and Oil Painting III**

2 credit hours/ 4 periods (1 lec., 3 lab)

Advanced painting for technique, color knowledge, and content sources. Includes review of painting preparation, advanced level of composing and building paintings, and advanced development of a personal voice and vision.

Recommendation: Completion of APD 063 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**APD 065 Watercolor I**

2 credit hours/ 4 periods (1 lec., 3 lab)

Introduction to watercolor painting for personal use. Includes watercolor materials, properties of watercolor pigments, and watercolor application methods.

Offered: Fall, Spring.

**APD 066 Watercolor II**

2 credit hours/ 4 periods (1 lec., 3 lab)

Progressive watercolor methods. Includes use of photographs and drawings, watercolor styles, watercolor applications, and beginning experimentation.

Prerequisite(s): APD 065.

Offered: Fall, Spring.

**APD 067 Watercolor III**

2 credit hours/ 4 periods (1 lec., 3 lab)

Additional progressive watercolor methods. Includes intermediate watercolor applications, and intermediate experimentation.

Prerequisite(s): APD 065.

Offered: Fall, Spring.

**APD 068 Watercolor IV**

2 credit hours/ 4 periods (1 lec., 3 lab)

Watercolor IV Continuation of progressive watercolor methods. Includes advanced watercolor applications and advanced experimentation.

Prerequisite(s): APD 065.

Offered: Fall, Spring.

**APD 073 Mariachi Music III**

2 credit hours/ 4 periods (1 lec., 3 lab)

Includes practicing and performing as a group and solo, styles inherent to mariachi music, the role of each musical instrument to produce a total sound, and stage performance techniques for a mariachi performing group.

Prerequisite(s): APD 072.

Offered: Fall, Spring.

**APD 078 Mariachi Music V**

2 credit hours/ 4 periods (1 lec., 3 lab)

Includes music theory, rhythms and patterns, rhythmic applications, advanced tonality application techniques, performance and gesturing techniques, execution of songs, microphone techniques, duets, trios, and ensemble singing.

Offered: Fall, Spring.

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**ASIAN AMERICAN SOCIETY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**APA 200 Contemporary Issues in Asian American Society**

3 credit hours/ 3 periods (3 lec.)

Introduction to the history and experiences of Asian Americans and Pacific Islanders within the United States. Includes demographic classification for Asian Pacific Americans (APA), history of Asians in America, contemporary APA issues within the United States, and comparison of APA experiences to other minority groups in the United States.

Offered: May not be offered this year, check class schedule.

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**ASSEMBLY PRODUCTION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ASP 103 Hydraulic Systems**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and applications of hydraulic systems. Includes system operation, theory and safety, schematics and symbols, basic tools, assembly techniques, component operation and repair and troubleshooting.

Recommendation: Completion of MAT 082 and WLD 150 or consent of instructor before enrolling in this course.

Offered: Fall.

**ASP 105 Pneumatic Systems**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and application of pneumatic systems. Includes system operation theory and safety, schematics and symbols, basic tools, assembly techniques, component operation and repair and troubleshooting.

Recommendation: Completion of MAT 082 before enrolling in this course.

Offered: Fall.



**ASP 107 Vacuum Systems**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and application of vacuum systems. Includes vacuum fundamental principles, systems, pumps, gauges, materials and hardware, troubleshooting and leak detection.

Recommendation: Completion of MAT 082 before enrolling in this course.

Offered: Spring.

**ASP 123 Electrical Measurement**

3 credit hours/ 4 periods (2 lec., 2 lab)

Calibration, troubleshooting and electrical standards. Includes instrument calibrators, voltage standards, null detectors, differential voltmeters and digital multimeters, power supplies and an electrical measurement console.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall.

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**ASTRONOMY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**AST 050 The Sky**

1 credit hour/ 3 periods (3 lab)

Introduction to the terminology, technology, and concepts related to the sky. Includes the celestial sphere, observation, and recent advances in amateur astronomy.

Offered: May not be offered this year, check class schedule.

**AST 101 Solar System**

3 credit hours/ 3 periods (3 lec.)

Introduction to the science of the nature and origin of the solar system: the sun and its family of planets, along with comets and asteroids. Includes the history of astronomy and special topics regarding the space program. Also includes scientific thinking as an application of critical and quantitative thinking and science in contrast to pseudoscience.

Corequisite(s): AST 101LB

Offered: Fall, Spring.

**AST 101IN Solar System**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the science of the nature and origin of the solar system: the sun and its family of planets, along with comets and asteroids. Includes the history of astronomy and special topics regarding the space program. Also includes scientific thinking as an application of critical and quantitative thinking, and science in contrast to pseudoscience. Also includes in-class measurement and mathematical exercises, outside observation projects, independent studies, and self-initiated trips to local astronomy facilities.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**AST 101LB Solar System Laboratory**

1 credit hour/ 3 periods (3 lab)

Laboratory for AST 101. Includes in-class measurement and mathematical exercises, outside observation projects, independent studies, and self-initiated field trips to local astronomy facilities. Emphasizes hands-on group and individual experiences and mathematical reasoning to enrich understanding of AST 101 lecture material.

Corequisite(s): AST 101

Offered: Fall, Spring.

**AST 102 Stars, Galaxies, Universe**

3 credit hours/ 3 periods (3 lec.)

Introduction to the universe beyond the solar system. Includes the nature of light, how astronomers and telescopes work, and the possibilities of alien life in the universe. Also includes the lifetime of stars, exotic objects such as quasars, pulsars and black holes, and the origin, nature and future of the universe. Also includes scientific thinking as an application of critical and quantitative thinking and science in contrast to pseudoscience.

Corequisite(s): AST 102LB

Offered: Fall, Spring.

**AST 102IN Stars, Galaxies, Universe**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the universe beyond the solar system. Includes the nature of light, how astronomers and telescopes work, and the possibilities of alien life in the universe. Also includes the lifetime of stars, exotic objects such as quasars, pulsars and black holes and the origin, nature and future of the universe. Also includes scientific thinking as an application of critical and quantitative thinking and science in contrast to pseudoscience. Also includes in-class measurement and mathematical exercises, outside observation projects, independent studies, and self-initiated field trips to local astronomy facilities.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**AST 102LB Stars, Galaxies, Universe Laboratory**

1 credit hour/ 3 periods (3 lab)

Laboratory for AST 102. Includes in-class measurement and mathematical exercises, outside observation projects, independent studies, and self-initiated field trips to local astronomy facilities. Emphasizes "hands-on" group and individual experiences and mathematical reasoning to enrich understanding of AST 102 lecture material.

Corequisite(s): AST 102

Offered: Fall, Spring.

**AST 105 Life in the Universe**

3 credit hours/ 3 periods (3 lec.)

Multidisciplinary science, sometimes called astrobiology, focusing on the formation of the universe, the solar system, and life. Includes Earth's location in space and time, nature of life, light and the spectrum, origin of the universe, galaxies and stars, origin of the solar system, planetary atmospheres, origin and evolution of life on Earth, life on other solar system planets, and intelligent life around other stars. Also includes in-class laboratory exercises, group telescopic observation projects, and personal observation projects.

Corequisite(s): AST 105LB

Offered: Summer.

**AST 105IN Life in the Universe**

4 credit hours/ 6 periods (3 lec., 3 lab)

Multidisciplinary science, sometimes called astrobiology, focusing on the formation of the universe, the solar system, and life. Includes Earth's location in space and time, nature of life, light and the spectrum, origin of the universe, galaxies and stars, origin of the solar system, planetary atmospheres, origin and evolution of life on Earth, life on other solar system planets, and intelligent life around other stars. Also includes in-class laboratory exercises, group telescopic observation projects, and personal observation projects.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**AST 105LB Life in the Universe Laboratory**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of AST 105.

Corequisite(s): AST 105

Offered: Spring.

**AST 296LB Independent Study in Astronomy**

1-4 credit hours/ 3-12 periods (3-12 lab)

Experience in astronomical research, projects, or topical studies. Specific content to be determined by student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken three times for a maximum of twelve credit hours.

Offered: Fall, Spring.

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**AUTOMOTIVE TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**AUT 100 Small Engine Troubleshooting & Repair**

3 credit hours/ 5 periods (1 lec., 4 lab)

Small Engine Troubleshooting and Repair Principles and procedures for overhauling, troubleshooting and repairing small engines. Include safety and hazardous materials handling, engine types and identification, engine operation and maintenance, disassembly and inspection, engine reconditioning and assembly, fuel and ignition system assembly, mechanical operation and testing, multicylinder engines, and overhead valve (OHV) engines.

Offered: Fall, Spring, Summer.

**AUT 101 Automotive Maintenance**

3 credit hours/ 5 periods (1 lec., 4 lab)

Automotive Maintenance Techniques of routine vehicle maintenance. Includes safety and hazardous materials handling, customer vehicle identification and handling, new vehicle pre-delivery inspection and preparation, safety inspection, lubrication technician tasks, light line technician tasks, and fluid flushing.

Offered: Fall, Spring, Summer.

**AUT 105 Light Line Maintenance**

3 credit hours/ 5 periods (1 lec., 4 lab)

Principles and procedures for light line service. Includes safety, transmission and driveline systems, air conditioning/heating systems, electrical systems, suspension/steering systems, engine performance, and tools and equipment.

Offered: Fall, Spring, Summer.

**AUT 120 Engine Diagnosis and Repair**

3 credit hours/ 7 periods (1 lec., 6 lab)

Techniques for light line engine service. Includes personal and environmental safety, general engine diagnosis, lubrication system diagnosis and repair, cooling system diagnosis and repair, cylinder head diagnosis and repair, and engine block diagnosis and repair.

Offered: Fall, Spring, Summer.

**AUT 122 Engine Remove and Install**

3 credit hours/ 7 periods (1 lec., 6 lab)

Techniques for heavy-line engine exchange. Includes personal and environmental safety, front wheel drive engine removal and installation, and rear wheel drive engine removal and installation.

Offered: Fall, Spring, Summer.

**AUT 124 Automotive Diesel Engine Tune-Up**

3 credit hours/ 7 periods (1 lec., 6 lab)

Maintenance of automotive diesel engines. Includes tune-up, assembly and calibration of fuel injectors, and diagnosis and repair of glow plug electronic control systems.

Offered: Fall, Spring, Summer.

**AUT 126 Engine Performance and Driveability Troubleshooting**

3 credit hours/ 7 periods (1 lec., 6 lab)

Diagnosis and repair of On-board Diagnostics Generation One (OBDI) and Two (OBDII) systems. Includes personal and environmental safety, general engine, computerized engine controls, ignition system, fuel, air induction, and exhaust systems, emissions control systems, and engine related service.

Offered: Fall, Spring, Summer.

**AUT 128 Automotive Electrical Fundamentals and Applications**

3 credit hours/ 7 periods (1 lec., 6 lab)

Principles and procedures of electrical diagnosis and repair. Includes electrical fundamentals and test equipment, electrical system, battery, starting system, charging system, lighting systems, instrumentation, horn and wiper/ washer, integrated circuits, and computerized control systems.

Offered: Fall, Spring, Summer.

**AUT 129 Automotive Electrical Accessories**

3 credit hours/ 7 periods (1 lec., 6 lab)

Electrical circuit diagnosis, repair, and replacement. Includes electrical fundamentals and test equipment, accessory diagnosis and repair, tilt steering column repair, and electrical connectors and terminal replacement.

Offered: Fall, Spring, Summer.

**AUT 132 Automotive Drivetrain Removal and Replacement**

3 credit hours/ 7 periods (1 lec., 6 lab)

Principles and procedures for automotive driveline component exchange. Includes personal and environmental safety, general drivetrain diagnosis, and diagnosis and repair of the clutch, automatic and manual transmissions and transaxle, drive axle and differential, and four-wheel drive components.

Offered: Fall, Spring, Summer.

**AUT 133 Automatic Transmission/Transaxle Service and Rebuilding**

3 credit hours/ 7 periods (1 lec., 6 lab)

Principles and procedures for front- and rear-wheel drive automatic transmission overhaul. Includes personal and environmental safety, automatic transmission diagnosis and service, and transmission in-vehicle and off-vehicle repair.

Offered: Fall, Spring, Summer.

**AUT 136 Automotive Manual Transmission and Driveline Service**

3 credit hours/ 7 periods (1 lec., 6 lab)

Principles and procedures for automotive driveline component overhaul. Includes personal and environmental safety, general drivetrain diagnosis, and diagnosis and repair of manual transmission and transaxle, drive shaft and half-shaft, universal and constant-velocity (CV) joint, drive axle and differential, limited slip differential, and four-wheel drive.

Offered: Fall, Spring, Summer.

**AUT 138 Automotive Suspension Systems**

3 credit hours/ 7 periods (1 lec., 6 lab)

Principles and procedures for automotive suspension system service. Includes safety, adjustment and repair of front and rear suspension systems, and related suspension component service.

Offered: Fall, Spring, Summer.

**AUT 139 Automotive Steering and Alignment Systems**

3 credit hours/ 7 periods (1 lec., 6 lab)

Principles and procedures for automotive steering and alignment systems service. Includes safety, manual and power steering systems, wheel alignment diagnosis, adjustment, and repair, and wheel and tire diagnosis and repair.

Offered: Fall, Spring, Summer.

**AUT 140 Automotive Brakes Diagnosis and Repair**

3 credit hours/ 7 periods (1 lec., 6 lab)

Diagnosis and repair of automotive hydraulic brake systems. Includes personal and environmental safety, hydraulic system diagnosis and repair, drum and disc brake diagnosis and repair, power assist units diagnosis and repair, wheel bearings, park brake, and brake electrical diagnosis and repair, and anti-lock brake systems (ABS) components and operation.

Offered: Fall, Spring, Summer.

**AUT 142 Automotive Heating, Ventilation, and Air Conditioning**

3 credit hours/ 7 periods (1 lec., 6 lab)

Diagnosis and repair of automotive heating, ventilation, and air conditioning (HVAC) systems. Includes personal and environmental safety, HVAC systems components, air conditioning (AC) diagnosis and repair, refrigeration system component diagnosis and repair, heating and engine cooling systems diagnosis and repair, operating systems and controls diagnosis and repair, and refrigerant recovery, recycling, and handling.

Offered: Fall, Spring, Summer.

**AUT 185 Automotive Shop Skills Application**

.5-3 credit hours/ 1.5-9 periods (1.5-9 lab)

Light line diagnosis and repair of daily use vehicles. Includes preparing repair orders, complaint procedures, researching service data, vehicle service and repair tasks, and shop maintenance. Also includes the industry standard of complaint, cause, and correction.

Information: Completion of an AUT course in the same specialty area and approval of automotive department chair or instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**AUT 190 Automotive Internship**

1-3 credit hours/ 5-15 periods (5-15 lab)

Volunteer internship field work experience at an approved work site. Includes safety and hazardous materials handling, vehicle inspection, work and parts orders, thread and fastener repair, engine mechanical systems, engine performance, transmission and driveline systems, brake systems, heating, ventilating, and air conditioning (HVAC) systems, electrical systems, and suspension and steering systems.

Prerequisite(s): AUT 100, 101, 105, 140, 142 and satisfactory completion of the proficiency exam with a minimum score of 80% on the written exam and 90% on the practical exam, and a 3.5 Grade Point Average (GPA) in AUT coursework.

Information: Enrollment and placement contingent upon completion of prerequisite courses, earned Grade Point Average, and satisfactory score on automotive proficiency exam. Designed for students in their third and forth semester of course work in the automotive program.

Offered: Fall, Spring, Summer.

**AUT 199 Introduction to Co-op: Automotive Technology**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education for description.

Corequisite(s): AUT 199WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**AUT 199WK Co-op Work: Automotive Technology**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education for description.

Corequisite(s): AUT 199

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

**AUT 297S1 Automotive Seminar**

1 credit hour/ 1 period (1 lec.)

Automotive job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**AUT 299 Introduction to Co-op: Automotive Technology**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education for second-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience.

Corequisite(s): AUT 299WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**AUT 299WK Co-op Work: Automotive Technology**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

Corequisite(s): AUT 299

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

## AVIATION TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### AVM 101 Structural Repair I

4 credit hours/ 8 periods (2 lec., 6 lab)

Structural repair of fuselage, wings and empennage groups. Includes safety, hand and machine cutting, and measuring tools. Also includes layout methods and structural repair processes.

Recommendation: Completion of mathematics assessment above MAT 082 before enrolling in this course.

Information: Consent of instructor is required before enrolling in this course.

Offered: Summer.

### AVM 102 Structural Repair II

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of AVM 101. Includes safety, bend allowance, layout, fasteners, machine usage, patching techniques and structural repair techniques.

Prerequisite(s): AVM 101.

Offered: Spring.

### AVM 105 Aircraft Sheetmetal Repair

5 credit hours/ 8 periods (2 lec., 6 lab)

Principles and procedures for fuselage, wing, and empennage sheetmetal repair. Includes safety, hand tools, layout methods, materials, fasteners, repair techniques, parts fabrication, and corrosion prevention and control.

Offered: Spring.

### AVM 110 Aircraft Blueprint Reading

3 credit hours/ 3 periods (3 lec.)

Theory and application of aircraft blueprint reading. Includes types of aircraft drawings, measuring tools, drawing and lay-out equipment, types of views, projections, reference lines, drawing format, title block, manufacturing codes, symbology for fasteners, hardware, and materials. Also includes production of aircraft drawing, sketches, usage of aircraft schematics, graphs, charts, detail, assembly and exploded diagrams.

Offered: Fall, Summer.

### AVM 114 Regulatory Requirements

3 credit hours/ 3 periods (3 lec.)

Federal Aviation Administration (FAA) regulatory requirements. Includes certification of aircraft and components, FAA regulations for aircraft maintenance, FAA publications, manufacturing standards, inspection requirements, maintenance, mechanic certification, maintenance publications and forms, and aircraft logs.

Offered: Fall.

### AVM 120 Aviation Electricity

4 credit hours/ 5 periods (3 lec., 2 lab)

Theory and application of direct-and alternating-current electrical systems in aircraft. Includes electron theory, common circuit design, aircraft schematics, and the application of Ohm's Law in troubleshooting aircraft DC and AC electrical systems.

Offered: May not be offered this year, check class schedule.

### AVM 123 Airframe Familiarization

3 credit hours/ 3 periods (3 lec.)

Structure and system functions of aircraft. Includes fuselage, control systems, support systems, ground handling and servicing and publications.

Offered: Spring.

### AVM 130 Aircraft Composite Repair

5 credit hours/ 8 periods (2 lec., 6 lab)

Construction and repair processes using advanced composite materials. Includes reinforcing fibers, matrix and core materials, manufacturing of components, composite safety, curing wet layup and prepreg repairs, tools and equipment, and inspection and damage assessment.

Information: Consent of instructor is required before enrolling in this course.

Offered: Spring.

### AVM 150 Structural Repair III

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of AVM 102. Includes repair publications, materials handling, cable fabrication, machining processes, protective coatings, hand forming and structural repair processes.

Prerequisite(s): AVM 102.

Offered: Fall.

### AVM 151 Structural Repair IV

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of AVM 150. Includes tube and hose fabrication, locking fasteners, damage classifications and structural repair processes.

Prerequisite(s): AVM 150.

Offered: Fall.

### AVM 160 Aircraft Materials and Metallurgy

3 credit hours/ 3 periods (3 lec.)

Characteristics and properties of aircraft structural metals. Includes ferrous and non-ferrous metals, surface treatment, alloying, corrosion control and destructive and non-destructive testing.

Offered: May not be offered this year, check class schedule.

### AVM 165 Aircraft Hardware and Fasteners

3 credit hours/ 3 periods (3 lec.)

Aircraft structural repair hardware and fasteners. Includes specifications and standards, types, control linkages, tubing, hose and packings.

Offered: Fall.

### AVM 170 Aircraft Powerplant Familiarization

3 credit hours/ 3 periods (3 lec.)

Aircraft powerplant functions and systems. Includes reciprocating and turbine engine powerplants, requirements, hazards and safety, nacelles, cowling pylon and mounting systems and foreign object damage.

Offered: Spring.

### AVM 202 Aviation Safety

3 credit hours/ 5 periods (1 lec., 4 lab)

Introduction to aviation safety procedures. Includes personal safety issues, human factors, accident avoidance, facility fire protection, hazardous materials safety and handling procedures, ramp procedures for movement, and securing and servicing of aircraft and ramp support equipment. Also includes Forklift and scissors lift training.

Offered: Fall.

### AVM 203 Structural Repair V

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation AVM 151. Includes jiggging, shoring and alignment, corrosion and heat treatment and structural repair processes.

Prerequisite(s): AVM 151 and 160.

Offered: Spring.

### AVM 204 Structural Repair VI

4 credit hours/ 8 periods (2 lec., 6 lab)

Continuation of AVM 203. Includes sealants and sealant applications, heat treatment, plastics and plastic repairs and structural repair processes.

Prerequisite(s): AVM 203.

Offered: Spring

### AVM 205 Motion Dynamics

3 credit hours/ 5 periods (1 lec., 4 lab)

Principles of hydraulic power. Includes basic physics, basic mechanics, heat and fluid dynamics, fabrication and installation of fluid lines and fittings, laws of motion, basic aerodynamics, and aircraft nomenclature.

Offered: Fall.

### AVM 206 Materials and Processes

3 credit hours/ 5 periods (1 lec., 4 lab)

Introduction to non-metallic and metallic structural materials for comparison of their structural properties. Includes structural materials, metal processing, heat treatment, heat treatment of alloys or limited use metals, non-destructive testing/inspection, corrosion, corrosion types and factors, corrosion-prone areas, corrosion control: steel, aluminum, and limited use metals, processes and materials for corrosion control, aircraft cleaning, and aircraft cleaning agents.

Offered: Fall.

### AVM 207 Weight and Balance

3 credit hours/ 5 periods (1 lec., 4 lab)

Preparing aircraft for weight and balance. Includes referencing service and maintenance manuals, type certificate data sheets, terms, standard weight and balance practices, weighing an aircraft, principles of calculating center of gravity, correction of out of balance conditions, addition and subtraction of equipment, equipment list, flight manual updates, control surface balancing, identification and selection of standards hardware, installation and assembly of specialty hardware, and precision measuring equipment.

Offered: Fall.

### AVM 208 Basic Electricity

5 credit hours/ 8 periods (2 lec., 6 lab)

Introduction to basic aircraft electricity. Includes study of the structure of matter, electron theory, current/ electron flow, direct current, alternating current, Ohm's Law, Kirchhoff's laws, circuit elements, electrical calculation and measurements, interpreting schematics and other wiring diagrams, battery theory and maintenance, aircraft electrical systems, and introduction to communication and navigation radio systems.

Prerequisite(s): GTM 105.

Offered: Fall.



**AVM 209 Intermediate Electricity**

5 credit hours/ 8 periods (2 lec., 6 lab)

Intermediate electricity includes the study of aircraft airframe electrical components as well as airframe and powerplant electrical systems. Includes electric motors, generators and generator controls, alternators, inverters and related controls, power distribution systems, design and maintenance of aircraft electrical systems, digital electronics, analog electronics, communication and navigation systems, communications, weather warning systems, and electric instruments and autoflight systems.

Prerequisite(s): AVM 208.

Offered: Spring.

**AVM 210 Advanced Composite Aircraft Repair I**

4 credit hours/ 4 periods (4 lec.)

Theory and application of composite materials utilized in aircraft construction. Includes material types, handling and storage, manufacturing techniques, design criteria, safety, tool and equipment usage, damage and repair assessment, repair techniques, fastening systems, and documentation. Also includes a heavy emphasis on repair performance utilizing the Structural Repair Manuals for composite monolithic and sandwich core structures.

Prerequisite(s): AVM 101, 105, or 110 and 115 or concurrent enrollment.Corequisite(s): AVM 210LB

Offered: Spring.

**AVM 210LB Advanced Composite Aircraft Repair I Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of AVM 210.

Corequisite(s): AVM 210

Offered: Spring.

**AVM 211 Alternate Structure**

5 credit hours/ 8 periods (2 lec., 6 lab)

Aircraft structural fabrication using wood, tube steel and fabric processes and techniques. Includes structural types, wood and welded tube steel fabrication methods, welding of typical metals used in aircraft construction, fabric covering processes, inspection and maintenance typical repair procedures, and aircraft finishings.

Offered: Summer.

**AVM 218 Airframe Rigging and Landing Gear System**

3 credit hours/ 5 periods (1 lec., 4 lab)

Identification, assembly, alignment, balancing and rigging of aircraft rigging and landing gear systems. Includes aircraft nomenclature, characteristics of flight, flight control system, airframe assembly, rigging, structural alignments, control surface balancing, landing gear, shock struts, landing gear retraction, wheel alignment and steering, brake system servicing, brake assemblies, wheels, tires, warning systems, and anti-skid system.

Offered: Summer.

**AVM 219 Airframe Inspections**

3 credit hours/ 5 periods (1 lec., 4 lab)

Conformity Inspections of airframes. Includes inspections of incoming spare parts and stock items, airframe and equipment conformity inspections, airframe and systems airworthiness and conformity inspections, conformity inspections of installed equipment, annual and 100-hour inspections of small aircraft, including research of all pertinent inspection documents, service or maintenance manuals, type certificate data sheets, airworthiness directives, service bulletins and additional instructions for continued airworthiness, inspection procedures for large aircraft work orders, non-routine job cards used by local aviation maintenance companies.

Offered: Summer.

**AVM 222 Advanced Electrical System Airframe**

5 credit hours/ 8 periods (2 lec., 6 lab)

Theory and application of aircraft electrical power systems. Includes airframe systems and components, electronic flight instrument, auto pilots, serves and approach coupling systems, communication and navigation systems, antenna systems, fuel management, fluid quantity, pressure systems, AC, DC power generation and distribution, cabin temperature, pressurization, control systems, hydraulic power, landing gear safety sensor, auto brake and antiskid systems, flight control, load and feel limiting and lighting systems.

Prerequisite(s): AVM 209.

Offered: May not be offered this year, check class schedule.

**AVM 223 Hydraulic and Pneumatic Power**

3 credit hours/ 5 periods (1 lec., 4 lab)

Hydraulic and pneumatic system components. Includes system operating principles, fluids, pressures, hydraulic powered flight controls, landing gear, braking and accessory power systems, pneumatically powered or assisted accessories, and system and component inspection servicing and repairs.

Offered: Spring.

**AVM 224 Atmospheric Controls**

3 credit hours/ 5 periods (1 lec., 4 lab)

Atmospheric controls and its elements that are of concern to flight. Includes ice and rain detection and control systems, types of operations and maintenance, physiological requirements for flight crews and passengers and the human support systems, oxygen systems, cabin pressurization system and their operations, and safety and maintenance requirements.

Offered: Spring.

**AVM 225 Fire, Ice, Rain, and Fuel Systems**

3 credit hours/ 5 periods (1 lec., 4 lab)

Theory and application of fire, ice, rain and fuel systems. Includes fire detection terms, extinguishing and protection systems, smoke detection, fire warning, fire extinguishing system components used, how systems function, inspection testing and maintenance, ice and rain protection terms, formation and conditions for icing of aircraft, ice and rain detection, protection systems components, functions, inspection and maintenance, fuel system terms, safety system requirements, fuel tank types and construction, indicating, fueling, and defueling inspection and maintenance.

Offered: Spring.

**AVM 226 Engine Electrical**

3 credit hours/ 5 periods (1 lec., 4 lab)

Inspection, repair, and modification of engine electrical systems. Includes magneto(s) (components, tooling, wiring, and drives), ignition switches, ignition harness, ignition booster system, spark plugs, engine ignition analyzers, turbine engine (ignition transformers and igniter plugs), engine electrical controls (switches, fuses and circuit breaker, circuits, wiring, installation, and engine bulkhead), and technical data manuals and catalogs.

Offered: Fall.

**AVM 227 Engine Air Flow Systems**

3 credit hours/ 5 periods (1 lec., 4 lab)

Fundamentals of engine air flow systems. Includes reciprocating engine induction systems, alternate induction air systems, induction systems maintenance, superchargers, turbochargers, turbo compound systems, reciprocating engine exhaust systems, exhaust subsystems, exhaust system maintenance, reciprocating engine cooling, turbine engine induction systems, turbine engine cooling, turbine engine exhaust systems, turbine engine exhaust systems maintenance, and turbine engine airflow subsystems.

Offered: Fall.

**AVM 228 Aircraft Propellers**

3 credit hours/ 5 periods (1 lec., 4 lab)

Basics of aircraft propellers. Includes propeller nomenclature, types, construction, theory, installations, and maintenance, constant speed systems, feathering systems, reversing systems, icing systems, synchronizing systems, and unducted fans.

Prerequisite(s): AVM 231.

Offered: Fall.

**AVM 229 Engine Support Systems**

5 credit hours/ 8 periods (2 lec., 6 lab)

Theory and application of support systems for gas turbine engines. Includes fire protection, fire detection systems, fire extinguishing agents, fire protection systems, fire detection system maintenance, turbine engine pneumatic systems, pneumatic starting systems, thrust reversers, auxiliary power units, turbine engine removal, turbine engine installation, and engine storage and transport.

Prerequisite(s): AVM 226, 231, and 234.

Offered: Spring.

**AVM 231 Engine Principles, Monitoring and Inspection**

5 credit hours/ 8 periods (2 lec., 6 lab)

Principles, monitoring, and inspection of engines. Includes theory and construction of powerplants, requirements, types of engines, reciprocating engine design and construction, radial engine design and construction, reciprocating engine operating principles, engine power and efficiencies, turbine engine construction, turbine engine sub-assemblies, turbo prop engines, turbine engine operation principles, engine instrumentation, instrument principles of operation, maintenance of instruments and systems, and engine inspection requirements.

Offered: Fall.

**AVM 232 Reciprocating Engine Overhaul**

5 credit hours/ 8 periods (2 lec., 6 lab)

Basic aircraft reciprocating engine overhaul. Includes engine components, wrist pins, connection rods, crankshafts, case, cam shafts, lifters, valves, push rods/tubes, rocker assemblies, accessories, lubrication, overhaul options, overhaul credentials, overhaul procedures, reassembly after overhaul, engine installations, engine break-in, and test cell procedures.

Offered: Fall.



### AVM 233 Turbine Engines

5 credit hours/ 8 periods (2 lec., 6 lab)

Basic gas turbine engine and turbo propeller component makeup and repair. Includes inspection, servicing, and repairs performed on engine components: compressor, diffuser, combustion, accessory drive, and lubricating system. Also includes a reassembly overhaul.  
Offered: Fall.

### AVM 234 Engine Fuel Metering and Operation

5 credit hours/ 8 periods (2 lec., 6 lab)

Fundamentals of aircraft fuel systems. Includes fuel metering theory and requirements, aviation fuels, float type carburetion, float carburetor maintenance and installation; pressure carburetor maintenance and installation; fuel injection systems, Bendix fuel injection and maintenance, TCM fuel injection and maintenance, fuel metering system components and maintenance, turbine engine fuel systems maintenance, components, and jet fuel controls; and reciprocating, turbine, and turbo propeller engine operations.

Prerequisite(s): AVM 226, 228, and 231.

Offered: Spring.

### AVM 250 Structural Repair VII

4 credit hours/ 10 periods (1 lec., 9 lab)

Simulated industry repair performance. Includes quality assurance, required paperwork and repairs to aircraft structures.

Prerequisite(s): AVM 204.

Offered: Spring.

### AVM 260 Advanced Composite Aircraft Repair II

1 credit hour/ 1 period (1 lec.)

Theory and application of composite and bonded metal structures utilized in aircraft construction. Includes repair methods selection, source documents, repair methods and design criteria, bonded metal repairs, tank and non-tank processing, priming, and environmental considerations. Also includes a heavy emphasis on repair performance utilizing the Structural Repair Manuals for composite monolithic and sandwich core, and bonded metal structures.

Prerequisite(s): AVM 210/LB.

Corequisite(s): AVM 260LB

Offered: Spring.

### AVM 260LB Advanced Composite Aircraft Repair II Lab

3 credit hours/ 9 periods (9 lab)

This is the Lab portion of AVM 260.

Corequisite(s): AVM 260

Offered: Spring.

### AVM 297S1 Aviation Seminar:

3 credit hours/ 3 periods (3 lec.)

Aviation job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

## BIOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### BIO 100IN Biology Concepts

4 credit hours/ 6 periods (3 lec., 3 lab)

Basic principles and concepts of biology. Includes methods of scientific inquiry, cell structure and chemistry, metabolism, reproduction, genetics, molecular biology evolution, and ecology and current issues in biology.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

### BIO 104IN Animal Sexual Behavior

4 credit hours/ 6 periods (3 lec., 3 lab)

Exploration of animal mating patterns via behavioral research. Includes animal behavior, evolutionary concepts, genetics of behavior, maximizing reproduction, and student research projects.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall.

### BIO 105IN Environmental Biology

4 credit hours/ 6 periods (3 lec., 3 lab)

Fundamentals of ecology and their relevance to human impact on natural ecosystems. Includes ecosystem structure and function, population dynamics, and human impacts on air, water, land, and biodiversity.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

### BIO 108IN Plants, People and Society

4 credit hours/ 6 periods (3 lec., 3 lab)

Past, present and future roles of plants in our lives. Includes basic principles of botany, modern, historical and regional perspectives on human use of plants, and present and future practices in plant cultivation.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

### BIO 109IN Natural History of the Southwest

4 credit hours/ 6 periods (3 lec., 3 lab)

Study of the common plants and animals of the Southwest. Includes their identification, adaptation, behavior and ecology. Also includes physical geography and geological principles of the region.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

### BIO 110 Techniques and Mathematics for the Laboratory

2 credit hours/ 2 periods (2 lec.)

Introduction to the use of proper techniques and mathematical calculations in a laboratory setting. Includes safety, laboratory mathematics, and ancillary equipment and instruments.

Prerequisite(s): MAT 092 or required score on assessment test, and CHM 080 or 130 or placement into CHM 151.

Information: Prerequisites may be waived with consent of instructor.

Offered: Fall, Spring.

### BIO 115IN Wildlife of North America

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the mammals, birds, fish, reptiles, amphibians, and selected invertebrates of North America. Includes habitats, wildlife interrelationships, population dynamics, and discussion of national, state, and private wildlife agencies. Also includes a laboratory emphasis on native Arizona species.

Information: IN is the integrated version of the course with lecture and lab taught simultaneously.

Offered: Fall, Spring.

### BIO 121IN Current Issues in Human Biology

4 credit hours/ 6 periods (3 lec., 3 lab)

Exploration of current topics in human biology. Includes genetics, human biology diversity, reproduction, development and aging. Also includes current topics in human health and human impacts on the environment.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

### BIO 127IN Human Nutrition and Biology

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles of nutrition presented in the context of human biology. Includes chemistry, digestion, absorption, and metabolism of nutrients. Also includes biological and nutritional perspectives on various health issues such as cardiovascular disease, hypertension, cancer, diabetes, and osteoporosis.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously. Same as FSN 127IN.

Offered: Fall, Spring, Summer.

### BIO 135 Genetics, Biotechnology and Human Affairs

4 credit hours/ 6 periods (3 lec., 3 lab)

An introduction to human genetics and biotechnology including career exploration, history and application of recombinant DNA technology, the human genome project, and laboratory safe practices. Includes introduction to biotechnology, fundamentals of cell biology and genetics, applications of biotechnology, bioethics, careers in biotechnology, and laboratory techniques.

Recommendation: Completion of high school Chemistry and high school Biology before enrolling in this course.

Offered: Fall, Spring, Summer.

### BIO 156IN Intro Biology Allied Health

4 credit hours/ 6 periods (3 lec., 3 lab)

Introductory Biology for Allied Health Introduction to biology for the health professions. Includes principles of science, scientific measurement and laboratory techniques, chemistry of life, cell anatomy and physiology, cellular reproduction, patterns of inheritances and human tissues.

Recommendation: Completion of CHM 130 before enrolling in this course.

Information: IN is the integrated version of the course with lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**BIO 160IN Introduction to Human Anatomy and Physiology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Structure and dynamics of the human body. Includes foundations such as chemical, cellular and tissue levels of organization. Also includes major structures and functions of the integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems. Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**BIO 181IN General Biology I: (Majors)**

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles of structure and function of living things at the molecular, cellular and organismic levels of organization. Includes introduction to the scientific process, scientific measurements and laboratory techniques, chemistry of cells, organization of cells, metabolism, patterns of cell division, patterns of inheritance, nucleic acids, and biotechnology.

Prerequisite(s): CHM 151, placement into MAT 122 on Mathematics assessment test, REA 091 or required score on Reading assessment test.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously. Prerequisites may be waived with consent of instructor. See a Biology instructor for prerequisite information.

Offered: Fall, Spring, Summer.

**BIO 182IN General Biology II: (Majors)**

4 credit hours/ 6 periods (3 lec., 3 lab)

Additional principles of living things at the levels of organism, population, community, and ecosystem. Includes evolution of life, classification of organisms, survival strategies, interactions between organisms and with their environment, ecosystem structure, and human impacts upon the biosphere.

Recommendation: Completion of BIO 181 before enrolling in this course.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**BIO 183IN Marine Biology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Survey of marine environments and their biotic communities. Includes scientific measurements and laboratory techniques, principles of marine science, life in the marine environment, structure and function of marine ecosystems, and humans and the sea. Also includes an emphasis on the natural history of marine organisms.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**BIO 184IN Plant Biology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Study of principles and processes in plant biology with emphasis on vascular plants. Includes plant structure, plant physiology and development, genetics, and evolution, and ecology.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**BIO 187IN Introduction to Biological Research**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the methods of research in biology. Includes scientific laboratory procedures, experimental design, scientific writing, bioethics, and current research in working laboratories.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: May not be offered this year, check class schedule.

**BIO 201IN Human Anatomy and Physiology I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Structure and function of the body. Includes levels of organization, homeostasis and disease, anatomical terms, integumentary system, skeletal system and articulations, muscular and nervous systems, and special senses.

Prerequisite(s): BIO 156IN with a C or better or completion of a 200 level (or higher) Human Anatomy and Physiology course with a C or better or required score on Biology assessment test.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**BIO 202IN Human Anatomy and Physiology II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of BIO 201IN. Includes the structure and function of the endocrine, cardiovascular, lymphatic/immune, respiratory, digestive, urinary, and reproductive systems.

Prerequisite(s): BIO 201IN with a C or better.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**BIO 203 Anatomy & Physiology Review for Health Related Professions**

1 credit hour/ 1 period (1 lec.)

Review of human body systems which includes clinical application of human anatomy and physiology. Includes the integumentary, skeletal, muscular, nervous, endocrine, circulatory, immune, respiratory, digestive, urinary/renal, and reproductive systems.

Prerequisite(s): BIO 201IN and 202IN with a C or better.

Recommendation: For students who are preparing to take board exams in the health related professions, or those who wish to review anatomy and physiology.

Information: May be taken three times for a maximum of three credit hours.

Offered: Fall, Spring, Summer.

**BIO 205IN Microbiology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Study of microorganisms and their relationship to health, ecology, and related fields. Includes classification, metabolism, microbial control, and immunity. Also includes an overview of viruses and the pathogenic fungi.

Prerequisite(s): BIO 156IN, 160IN, 181IN or required score on the Biology assessment test.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**BIO 206 Biotechnology Instrumentation I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles and methodologies of recombinant DNA technology. Includes preparation of solutions and growth media in a laboratory setting, and genetic analyses.

Offered: Fall.

**BIO 207 Biotechnology Instrumentation II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles and methodologies of protein expression, isolation, identification and purification. Includes immunological and cell culture techniques.

Offered: Spring.

**BIO 250 Biomedical Ethics**

3 credit hours/ 3 periods (3 lec.)

Introduction to the nature and scope of decision making in public health, medicine and health care, as it relates to bioethical issues. Includes overview of dilemmas in bioethics, legal, social and ethical issues in human genetics, the beginning of life, and the end of life. Also includes life and death decisions, human organ transplantation, and regulations of human research.

Offered: Fall.

**BIO 289 FACES-Fostering & Achieving Cultural Equity & Sensitivity**

3-4 credit hours/ 7-8 periods (1-2 lec., 6 lab)

Introduction to current health care opportunities and issues affecting health care. Includes guided rotations in a hospital and/or clinic. Also includes a speaker series that focuses on issues of diversity that impact health care in the United States today and opportunities in the health care professions.

Information: This course is offered in collaboration with the Office of Minority Affairs at the University of Arizona.

Offered: Fall, Spring.

**BIO 290 Field Biology: Ecological & Environmental Field Experience**

1 credit hour/ 5 periods (5 lab)

Field expeditions in which ecological and environmental principles and concepts are observed and studied. Includes natural organism in the field area, biotic communities and ecosystems, human impacts on ecosystems, and the local government's role.

Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring.

**BIO 295LB Independent Research in Biology**

1-4 credit hours/ 3-12 periods (3-12 lab)

Experience in scientific laboratory or field research. Specific content to be determined by student and instructor.

Information: One semester of biology and consent of instructor is required before enrolling in this course. May be taken three times for a maximum of twelve credit hours.

Offered: Summer.

**BIO 296 Special Projects**

1-4 credit hours/ 3-12 periods (3-12 lab)

Exploration of special interest areas. Content to be determined by student and facilitator/instructor.

Information: One year of biology is required before enrolling in this course. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring, Summer.

**BIO 299 Introduction to Co-op: Biotechnology**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Includes biotechnology workplace skills, communication, time and energy management, stress and its management, careers, placing yourself on the job market, principles, techniques, and practices in the career field, and problems in the work situation.

Prerequisite(s): BIO 206 and 207 with a grade of B or better.

Corequisite(s): BIO 299WK

Recommendation: Completion of CHM 236 before enrolling in this course.

Information: May be taken two times for a maximum of two credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**BIO 299WK Co-op Work in Biotechnology**

3 credit hours/ 15 periods (15 lab)

A supervised cooperative work program for students in the biotechnology industry or academic research. Teacher- coordinators work with students and their supervisors in industry or research. The student develops competency and improved self confidence in the biotechnology workplace. This may be paid or unpaid experience.

Prerequisite(s): BIO 206 and 207 with a grade of B or better.

Corequisite(s): BIO 299

Recommendation: Completion of CHM 236 before enrolling in this course.

Information: May be taken two times for a maximum of six credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

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## BUILDING AND CONSTRUCTION TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**BCT 100 Professionalism in Service for BCT**

1 credit hour/ 1 period (1 lec.)

Procedures in business and customer service. Includes an introduction to professionalism, self-evaluation, service routine, dealing with a dissatisfied customer, and problem situations.

Offered: Fall, Spring, Summer.

**BCT 101 Principles of Construction**

3 credit hours/ 3 periods (3 lec.)

Building the human environment. Includes introduction to the construction industry, types of construction, regulations, patterns as a concept, methods, and construction process.

Offered: Fall, Spring.

**BCT 102 Building Materials**

3 credit hours/ 3 periods (3 lec.)

Construction standards and specific types of building materials used in commercial, industrial, and private construction projects. Includes construction standards, site work, concrete, masonry, metals, wood and wood products, thermal and moisture protection, doors and windows, finishes, specialties, equipment, furnishings, special construction, conveying systems, mechanical systems, and electrical systems.

Offered: Fall, Spring.

**BCT 104 Introduction to Equipment Maintenance**

4 credit hours/ 6 periods (2 lec., 4 lab)

Procedures and concepts for maintaining buildings in a commercial/industrial setting. Includes preventative maintenance requirements, maintenance terminology, industrial tool use, electrical equipment maintenance, electrical feed, bearing applications, sheaves applications, flexible drives and V-belts, centrifugal pump maintenance, vacuum pump maintenance, fire suppressant system maintenance and repair, metal fabrication, steel pipe plumbing, as-built print reading, lubricants, and interior wall frame/ construction.

Prerequisite(s): BCT 111, 112, 113, 114, 115, 116, and 172 or concurrent enrollment.

Offered: Fall, Spring, Summer.

**BCT 106 Soldering and Brazing for BCT**

4 credit hours/ 6 periods (2 lec., 4 lab)

Principles and technologies of joining different types of alloys by braze welding and soldering. Includes safety and health, procedures and design, pre-cleaning and surface preparation, filler metals, fluxes and atmospheres, torch brazing, pipe and tube, copper, and cast iron.

Prerequisite(s): BCT 111, 112, 113, 114, 115, and 116 or concurrent enrollment.

Offered: Fall, Spring, Summer.

**BCT 111 Basic Safety for the Building Trades**

1 credit hour/ 1 period (1 lec.)

Introduction to federal safety training standards. Includes employer responsibility-employee right to know, personal protective equipment, material handling, hand and power tools, electrical hazards, hazards communication standards, fire safety, scaffolds, fall protection, cranes, and stairways and ladders.

Information: Successful completion of this course qualifies the student for the 10 hour safety training card.

Offered: Fall, Spring, Summer.

**BCT 112 Construction Mathematics, Communication and Employability**

1 credit hour/ 1 period (1 lec.)

Introduction to basic mathematics concepts and employability in the construction industry. Includes whole numbers, measurements, fractions, decimals, conversion process, metric system, construction geometry, reading, writing, listening, and speaking skills, employability in the construction business, critical thinking and computer skills, relationship skills, and workplace issues.

Information: Mathematics assessment test is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**BCT 113 Hand and Power Tools**

1 credit hour/ 1 period (1 lec.)

Selection and safety procedures Includes trades terms, hand tool, and power tool use to specific jobs in the construction industry.

Offered: Fall, Spring, Summer.

**BCT 114 Blueprint Reading**

1 credit hour/ 1 period (1 lec.)

Basic concepts of blueprints. Including terms and symbols, components, measuring tools, line types and symbols, abbreviations, grid lines, plan locations, and dimensions, production techniques, and blueprint reading parts and locations.

Offered: Fall, Spring, Summer.

**BCT 115 Basic Rigging**

1 credit hour/ 1 period (1 lec.)

Rigging hardware and equipment. Includes safety, rigging equipment, inspection, crane hand signals, estimating an object, common rope knots, types of derricks and cranes, and rigging and moving equipment use.

Offered: Fall, Spring, Summer.

**BCT 120 Blueprint Reading for Construction**

3 credit hours/ 3 periods (3 lec.)

Residential and light commercial blueprint reading. Includes blueprint symbols and terminology, construction materials, applications and specifications for commercial buildings, light frame and brick veneer construction, and appropriate mathematics.

Recommendation: Completion of BCT 112 and 114 before enrolling in this course.

Offered: Fall, Spring.

**BCT 123 Concrete/Masonry**

3 credit hours/ 5 periods (1 lec., 4 lab)

Basic concepts and materials for concrete construction, finishing, and masonry work. Includes trade terminology, composition and characteristics of concrete, uses of concrete as a building material, effects of craftsmanship on finished concrete, concrete construction process, site operations and work set-up, history of masonry, and modern masonry materials and methods.

Offered: Spring.

**BCT 130 EPA Clean Air Act: Section 608**

1 credit hour/ 1 period (1 lec.)

Freon certification preparation. Includes basics of refrigerant bearing equipment, ozone depletion and the new legislation, technician categories covered on the certification examination, and certification testing.

Prerequisite(s): BCT 127.

Information: Prerequisites may be waived with consent of instructor if the student has HVAC systems competency or field experience.

Offered: Fall, Spring, Summer.

**BCT 132 Residential and Industrial HVAC I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to tools, materials, and procedures for heating, ventilating, and air conditioning (HVAC). Includes copper and plastic piping practices, soldering and brazing, ferrous metal piping practices, basic electricity, and introduction to cooling and heating.

Prerequisite(s): BCT 111, 112, 113, 114, and 115.

Offered: Fall, Spring, Summer.

**BCT 133 Residential and Industrial HVAC II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to properties of air distribution systems. Includes chimneys, vents, and flues, maintenance skills for the service technician, alternating current, basic electronics, electric heating, and introduction to control circuit troubleshooting.

Prerequisite(s): BCT 132.

Offered: Fall, Spring, Summer.



**BCT 134 Residential and Industrial HVAC III**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to the principles of heat transfer, humidity, filtering, and energy saving devices used in HVAC systems. Includes accessories and optional equipment, metering devices, compressors, heat pumps, leak detection, evacuation, recovery, and charging.

*Prerequisite(s): BCT 133.*

Offered: Fall, Spring, Summer.

**BCT 135 National Electrical Code Residential Wiring Applications**

4 credit hours/ 6 periods (2 lec., 4 lab)

Electrical wiring and installation conforming to National Electrical Code requirements. Includes grounded systems, requirements for over-current protection of conductors, ampacity criteria, installing over-current protection of conductors, installing services, installing motors and transformers, remote control and signaling circuits, and installing structured wiring in homes and offices.

*Prerequisite(s): BCT 172.*

Offered: Fall, Spring, Summer.

**BCT 136 Sheet Metal I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to metalworking, insulation, layout, and fabrication. Includes introduction to the sheet metal trade, tools of the trade, fasteners, hangers, and supports, installation of air distribution accessories, insulation, introduction to sheet metal layout and processes, sheet metal math, and fabrication parallel line development.

*Prerequisite(s): BCT 111, 112, 113, 114 and 115.*

Offered: Spring.

**BCT 140 Painting for the Trades I**

3 credit hours/ 3 periods (3 lec.)

Concepts, tools, materials, and procedures for the painting trade. Includes careers in the painting trade, safety, ladders, scaffolds, lifts, and fall protection, surface/substrate materials, protecting adjacent surfaces, basic surface preparation, sealants and repairs/fillers, paints and coatings, and brushing and rolling paints and coatings.

*Prerequisite(s): BCT 111, 112, 113, 114, and 115.*

Offered: Spring.

**BCT 141 Painting for the Trades II**

3 credit hours/ 3 periods (3 lec.)

Continuation of Painting I. Includes painting failures and remedies, job planning and completion, chemical cleaning and stripping, low-pressure water cleaning, stains, clear finishes, wood finishing, coatings, and spray painting (conventional, airless and high volume low pressure).

*Prerequisite(s): BCT 140.*

Offered: Summer.

**BCT 142 Painting for the Trades III**

3 credit hours/ 3 periods (3 lec.)

Continuation of Painting II. Includes painting failures and remedies, job supervision, planning, and control, coatings, color and tinting, decorative (faux) finishes, wallcoverings, graphics, texturing, and spraying with special devices.

*Prerequisite(s): BCT 141.*

Offered: May not be offered this year, check class schedule.

**BCT 145 Carpentry I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Theories and concepts for carpentry. Includes orientation to the trade, wood building materials, fasteners and adhesive, hand and power tools, floor systems, wall, ceiling, and roof framing, and windows and exterior doors.

*Prerequisite(s): BCT 111, 112, 113, 114, 115, and 116 or concurrent enrollment.*

Offered: Fall, Spring, Summer.

**BCT 146 Woodworking**

3 credit hours/ 5 periods (1 lec., 4 lab)

Concepts and procedures for working with hardwoods. Includes introduction to hardwoods, measuring hardwoods, use of hardwoods, pressure treated wood, hardwood preparation, ripping wood, miter cuts, cross cut, job site safety, gluing and clamping, veneers, curves and circles, dados and rabbits, and smoothing.

Offered: Spring.

**BCT 150 Plumbing Basics**

4 credit hours/ 6 periods (2 lec., 4 lab)

Theories and concepts for plumbing and pipe fitting. Includes physics for plumbers, plumbing materials, water supplies, drainage, sewage disposal, pipe joint connections, pipe fittings, rough-in, valves and faucets, and fixtures.

*Prerequisite(s): BCT 111.*

Offered: Fall, Spring, Summer.

**BCT 172 Electrical I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Concepts and procedures for building and construction electrical training. Includes safety, conduit bending, electrical theory, test equipment, National Electric Code, aceways, boxes, and fittings, print reading, and wiring applications.

*Prerequisite(s): BCT 111, 112, 113, 114, and 115 or concurrent enrollment.*

Offered: Fall, Spring, Summer.

**BCT 173 Electrical II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 172. Includes alternating current, motor installation, grounding of structures and equipment, conduit bending, electrical boxes and fittings, and conductor installations.

*Prerequisite(s): BCT 172.*

Offered: Fall, Spring, Summer.

**BCT 174 Electrical III**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 173. Includes conductor installation, cable tray, conductor termination and splices, electric service installation, circuit breakers and fuses, contactors and relays, and electrical lighting.

*Prerequisite(s): BCT 173.*

Offered: Fall, Spring, Summer.

**BCT 181 Residential and Industrial Plumbing I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to common types of piping, their proper fitting, fixtures, and distribution systems. Includes introduction to the plumbing trade and drawings, plastic, copper, cast-iron, and carbon steel piping, fixtures and faucets, introduction to drainage, waste, and vent (DWV) systems, and water distribution systems.

*Prerequisite(s): BCT 111, 112, 113, 114, and 115.*

Offered: Fall, Spring, Summer.

**BCT 182 Residential and Industrial Plumbing II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Concepts and practices for plumbing. Includes offsets around obstructions, reading commercial drawings, installing and testing drainage, waste, and vent (DWV) piping system, installing roof, floor and area drains, and servicing various types of valves.

*Prerequisite(s): BCT 181.*

Offered: Fall, Spring, Summer.

**BCT 183 Residential and Industrial Plumbing III**

4 credit hours/ 6 periods (2 lec., 4 lab)

Concepts and installation procedures for water service, fixtures, and appliances. Includes installing and testing water supply piping, fixtures, valves, and faucets, water heaters, fuel gas systems, and servicing of fixtures, valves, and faucets.

*Prerequisite(s): BCT 182.*

Offered: Fall, Spring, Summer.

**BCT 184 National Electrical Code I**

3 credit hours/ 3 periods (3 lec.)

Requirements for the installation of electrical conductors, equipment, raceways, cables, and special occupancies. Includes introduction to the National Electrical Code, wiring and protection, wiring methods and materials, and equipment for general use.

*Prerequisite(s): BCT 172.*

Information: BCT 184 and 284 together is preparation for taking the National Electrical Code Certification exam.

Offered: Fall.

**BCT 190 Fieldwork for Construction**

1-8 credit hours/ 5-40 periods (5-40 lab)

Supervised fieldwork experience on a specific construction project at the project site.

*Recommendation: Completion of BCT 111, 112, 113, 114, and 115 before enrolling in this course.*

Information: May be taken two times for a maximum of sixteen credit hours. BCT course work or field experience will be necessary for success in this course. See a BCT instructor or department chair for more information.

Offered: Fall, Spring, Summer.

**BCT 199 Introduction to Co-op: Building & Construction Technologies**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

*Corequisite(s): BCT 199WK*

Information: May be taken two times for a maximum of two credit hours.

Offered: Fall, Spring, Summer.

**BCT 199WK Co-op Work: Building and Construction Technologies**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

*Corequisite(s): BCT 199*

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: Fall, Spring, Summer.



**BCT 202 Construction Business Management**

3 credit hours/ 3 periods (3 lec.)

Overview of construction business and project management. Includes planning and organizing, risk management, project management, estimating, scheduling, environmental and safety laws, employer obligations, financial management, contract law, and Arizona state requirements for contractors.

Offered: Fall, Spring.

**BCT 204 Construction Surveying**

3 credit hours/ 5 periods (2 lec., 3 lab)

Principles and techniques of construction surveying. Includes taping, leveling, transit, contour and topographic mapping, and construction surveying.

Prerequisite(s): GTM 105 or MAT 086 or required score on the Mathematics assessment test.

Recommendation: Completion of BCT 120 before enrolling in this course.

Offered: Spring.

**BCT 222 Commercial HVAC Systems**

4 credit hours/ 6 periods (2 lec., 4 lab)

Principles and components for commercial air conditioning and heating systems. Includes Heating, Ventilation, Air Conditioning (HVAC) system functions, commercial refrigeration systems, chilled water systems, HVAC distribution systems, calculations and formulas, and system troubleshooting, service, and performance.

Prerequisite(s): BCT 128.

Information: Prerequisites may be waived with consent of instructor if the student has HVAC systems competency or field experience.

Offered: Fall, Spring, Summer.

**BCT 223 Pneumatic HVAC Controls**

3 credit hours/ 4 periods (2 lec., 2 lab)

Pneumatic HVAC Controls Pneumatic controls for HVAC systems. Includes introduction to pneumatics, major component categories, controlled devices, relays, interconnecting piping and tubing, thermostats, calibration, air handling control systems, humidity control, central plant, and types of pneumatic systems.

Prerequisite(s): BCT 128.

Information: Prerequisites may be waived with appropriate field experience. See a BCT faculty advisor or department chair for additional information.

Offered: Fall, Spring, Summer.

**BCT 231 Residential and Industrial HVAC IV**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 134. Includes planned maintenance, troubleshooting gas heating, electric heating, oil heating, and heat pumps.

Prerequisite(s): BCT 134.

Offered: Fall, Spring, Summer.

**BCT 232 Residential and Industrial HVAC V**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 231. Includes troubleshooting accessories and electronic controls, hydronic heating and cooling systems, airside systems, air properties and air system balancing.

Prerequisite(s): BCT 231.

Offered: Fall, Spring, Summer.

**BCT 233 Residential and Industrial HVAC VI**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 232. Includes construction drawings and specifications, indoor air quality, energy conservation equipment, building management systems.

Prerequisite(s): BCT 232.

Offered: May not be offered this year, check class schedule.

**BCT 234 Residential and Industrial HVAC VII**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 233. Includes water treatment, system startup and shutdown, heating and cooling system design, and commercial and industrial refrigeration systems.

Prerequisite(s): BCT 233.

Offered: May not be offered this year, check class schedule.

**BCT 235 National Electric Code Commercial Wiring Applications**

4 credit hours/ 6 periods (2 lec., 4 lab)

Commercial electrical wiring and installation practices conforming to the National Electric Code. Includes commercial building plans, specifications, and drawings, electrical loads and branch circuits, switches and receptacles, branch circuit installations, motor and appliance circuits, feeders, special systems and circuits, panelboard selection and installation, electric service equipment, lamps and luminaires, emergency and standby power systems, overcurrent protection.

Prerequisite(s): BCT 135.

Offered: Fall, Spring, Summer.

**BCT 236 Residential and Industrial Plumbing IV**

4 credit hours/ 6 periods (2 lec., 4 lab)

Concepts that apply to plumbing installations. Includes applied math for plumbing installations, types of plumbing codes, types of vent configurations, indirect and special waste systems, and sewage and sump pumps.

Prerequisite(s): BCT 183.

Offered: May not be offered this year, check class schedule.

**BCT 237 Residential and Industrial Plumbing V**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to system requirements and demand calculations. Includes sizing water supply piping, backflow preventers, water pressure booster and recirculation systems, and servicing piping systems, fixtures, and appliances.

Prerequisite(s): BCT 236.

Offered: May not be offered this year, check class schedule.

**BCT 238 Residential and Industrial Plumbing VI**

4 credit hours/ 6 periods (2 lec., 4 lab)

Concepts and practices essential to competitive, successful plumbing businesses. Includes business math for plumbers, drainage, waste and vent (DWV), and storm systems, private water supply and waste disposal systems, locating buried sewer and water lines, and hydronic and solar heating systems.

Prerequisite(s): BCT 237.

Offered: May not be offered this year, check class schedule.

**BCT 239 Residential and Industrial Plumbing VII**

4 credit hours/ 6 periods (2 lec., 4 lab)

Concepts and principles on disinfecting, filtering, and softening water supply systems. Includes water supply treatment, swimming pools and hot tubs, compressed air systems, corrosive-resistant waste piping, and plumbing for mobile home and travel trailer parks.

Prerequisite(s): BCT 238.

Offered: May not be offered this year, check class schedule.

**BCT 240 Painting for the Trades IV**

3 credit hours/ 3 periods (3 lec.)

Continuation of Painting III. Includes safety, ladders, scaffolds, lifts and fall protection, containment/ventilation, surface preparation, industrial coatings, coating application, equipment, quality, inspections, coating failures and analysis, and specialty materials.

Prerequisite(s): BCT 142.

Offered: Summer.

**BCT 241 Painting for the Trades V**

3 credit hours/ 3 periods (3 lec.)

Continuation of Painting IV. Includes industrial coatings, coating application and equipment, quality inspections, coating failures and analysis, and specialty materials.

Prerequisite(s): BCT 240.

Offered: Fall.

**BCT 245 Carpentry II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 145. Includes techniques for reading construction drawings and specifications, site layout, measurement, and leveling, concrete materials and concrete reinforcement materials, construction of forms for footings and on-grade slabs, and concrete forms.

Prerequisite(s): BCT 145.

Offered: May not be offered this year, check class schedule.

**BCT 246 Carpentry III**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 245. Includes types of reinforcing materials, handling and placing concrete, manufactured and job-build forms, plot layout, and light construction equipment.

Prerequisite(s): BCT 245.

Offered: May not be offered this year, check class schedule.

**BCT 271 Electrical IV**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 174. Includes distribution equipment, distribution system transformers, electricity in HVAC systems, over current protection, conductor selection and calculations, raceway, box and fitting, and fill requirements.

Prerequisite(s): BCT 174.

Offered: Fall.

**BCT 272 Electrical VI**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 272. Includes high voltage/terminations/splices, load calculations, electronic theory, specialty lighting, advanced motor maintenance.

Prerequisite(s): BCT 271.

Offered: Spring.

**BCT 273 Building/Construction Technologies Electrical VI**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 272. Includes high voltage terminations/ splices, load calculations, electric theory, specialty lighting, and advanced motor maintenance.

Prerequisite(s): BCT 272.

Offered: Fall.

**BCT 274 Electrical VII**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of BCT 273. Includes advanced controls, signaling systems, specialty transformers, standby and emergency systems, welding machines, HVAC controls, and heat tracing and freeze protection.

Prerequisite(s): BCT 273.

Offered: Spring.

**BCT 280 International Building Code (IBC) I**

3 credit hours/ 3 periods (3 lec.)

Major systems of building construction (other than residential) with structural and nonstructural provisions. Includes administration, use and occupancy classification, types of construction, general building heights and area, fire resistance-rated construction, fire protection systems, and means of egress.

Recommendation: Completion of general residential field experience before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**BCT 281 International Building Code (IBC) II**

3 credit hours/ 3 periods (3 lec.)

Continuation of BCT 280. Includes means of egress, accessibility, detailed occupancy requirements, exterior wall coverings, roofs and foundations, special inspections interior finishes, gypsum board and interior environment, elevators, glazing, skylights, and plastics.

Prerequisite(s): BCT 280.

Offered: May not be offered this year, check class schedule.

**BCT 282 International Mechanical Code (IMC)**

3 credit hours/ 3 periods (3 lec.)

Major components of mechanical air system in building construction. Includes administration, definitions, general regulations, ventilation, exhaust systems, duct systems, combustion air, chimney and vents, appliances and fireplaces, boilers and water heaters, refrigeration gas, hydronic piping, fuel oil piping and storage, and solar systems.

Recommendation: Completion of general mechanical field experience before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**BCT 283 International Plumbing Code (IPC)**

3 credit hours/ 3 periods (3 lec.)

Major plumbing systems of building construction. Includes administration, definitions, general regulations, fixtures, faucets and fixture fittings, water heaters, water supply and distribution, sanitary drainage, indirect/special waste, vents, traps, interceptors and separators, storm drainage, and special piping and storage systems.

Recommendation: Completion of general plumbing field experience before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**BCT 284 National Electrical Code II**

3 credit hours/ 3 periods (3 lec.)

Continuation of BCT 184. Includes introduction to the National Electrical Code, special occupancies, special equipment, special conditions, and communication systems.

Prerequisite(s): BCT 184.

Information: BCT 184 and BCT 284 together is preparation for taking the National Electrical Code certification exam. Recommendation: None

Offered: Fall, Spring, Summer.

**BCT 286 International Residential Code (IRC) I**

3 credit hours/ 3 periods (3 lec.)

Requirements of the major systems of residential building construction (other than commercial). Includes administration, definitions, building planning, foundations, floors, wall construction, wall covering, roof-ceiling construction, roof assemblies, chimneys and fireplaces.

Recommendation: Completion of general construction field experience before enrolling in this course.

Offered: Fall.

**BCT 287 International Residential Code (IRC) II**

3 credit hours/ 3 periods (3 lec.)

Continuation of BCT 286. Includes energy efficiency, mechanical systems, plumbing systems, electrical systems, and referenced standards.

Prerequisite(s): BCT 286.

Offered: Spring.

**BCT 296 Independent Study in Building/Construction Technologies**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent study or special projects. Content to be determined by agreement between student and instructor.

Information: BCT course work of field experience will be necessary for success in this course. See a BCT instructor or department chair for more information.

Offered: Fall, Spring, Summer.

**BCT 297 Building and Construction Technologies Seminar:**

.25-4 credit hours/ .25-4 periods (.25-4 lec.)

Building and Construction Technologies job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest. Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**BCT 299 Introduction to Co-op: Building and Construction Tech**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education for second-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience.

Corequisite(s): BCT 299WK

Information: May be taken two times for a maximum of two credit hours.

Offered: Fall, Spring, Summer.

**BCT 299WK Co-op Work: Building and Construction Technologies**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

Corequisite(s): BCT 299

Offered: Fall, Spring, Summer. May be taken two times for a maximum of sixteen credit hours.

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**BUSINESS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**BUS 100 Introduction To Business**

3 credit hours/ 3 periods (3 lec.)

Introduction to Business Principles of business operations in the private enterprise system. Includes contemporary business and its environment, structure of American business, management principles of the organization, people, and production, marketing management, information systems and accounting, and financing the enterprise.

Offered: Fall, Spring, Summer.

**BUS 125 eCommerce**

3 credit hours/ 3 periods (3 lec.)

Conducting business on the Internet. Includes electronic-commerce terminology, locating information, business applications, legal issues and security, and web site components and connectivity. Also includes marketing on the Internet, career opportunities, future developments, and building and operating a successful e-commerce store.

Offered: Fall, Spring.

**BUS 148 Ethics in the Workplace**

3 credit hours/ 3 periods (3 lec.)

Ethical principles in decision making applied to the business and industry workplace. Includes ethical issues in decision making, ethical frameworks for decisions, personal values and ethical priorities, ethics in business and industry, ethical standards in the workplace, ethical choices, application of ethical principles, social and cultural values applied to decisions, and workplace culture.

Offered: Fall, Spring, Summer.

**BUS 151 Mathematics of Business**

3 credit hours/ 3 periods (3 lec.)

Fundamental mathematical procedures designed for practical utility in the business environment. Includes payroll, bank records, purchasing, sales, consumer credit, insurance, taxes, interest, inventory, depreciation, stocks and bonds, financial statements, and introductory statistics.

Prerequisite(s): MAT 082 or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**BUS 205 Statistical Methods in Economics and Business**

3 credit hours/ 3 periods (3 lec.)

Introduction to statistical concepts and methods of business. Includes statistics, data, and statistical thinking, methods for describing sets of data, probability, discrete random variables, continuous random variables, sampling distributions, estimation with confidence intervals, tests of hypothesis, inferences based on two samples, correlation and regression, methods for quality improvement, time series, design of experiments and analysis of variance, nonparametric statistics, and categorical analysis.

Prerequisite(s): MAT 172 or 173.

Offered: Fall, Spring, Summer.

**BUS 210 International Business**

3 credit hours/ 3 periods (3 lec.)

Introduction to international business, focusing on the importance of cultural, economic, legal, political, sociological, and strategic complexities that emerge when business activities transcend international borders. Includes the terminology of international business and the basic do's and don'ts within the various foreign business societies.

Recommendation: Completion of BUS 100 before enrolling in this course.

Offered: Fall, Spring.

**BUS 220 Legal Environment of Business**

3 credit hours/ 3 periods (3 lec.)

Legal, ethical, and international environment of business. Includes an introduction to law, ethics and corporate responsibility, judicial system and litigation, alternative dispute resolution, administrative agencies, crimes and torts, contract law, product liability, international business law, agency law, and legal forms of business enterprises.

Offered: Fall, Spring, Summer.

**BUS 250 Entrepreneurship**

3 credit hours/ 3 periods (3 lec.)

Introduction to implementing creative ideas for organizations. Includes types of entrepreneurship, entrepreneurial mind, Timmons model of the entrepreneurial process, resource requirements, financing entrepreneurial ventures, and the business plan.

Prerequisite(s): BUS 100.

Offered: Spring.

**BUS 299 Introduction to Co-op: Business**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Emphasis on attitude adjustment.

Corequisite(s): BUS 299WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**BUS 299WK Co-op Work: Business**

1-8 credit hours/ 5-40 periods (5-40 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

Corequisite(s): BUS 299

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

**CHEMISTRY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CHM 080 Preparation for General Chemistry**

3 credit hours/ 3 periods (3 lec.)

Fundamentals of chemistry. Includes nomenclature, atomic structure, bonding, chemical equations, moles, stoichiometry, the periodic table, conversions, problem-solving techniques and study skills.

Prerequisite(s): MAT 092.

Information: Designed to prepare students for CHM 151.

Offered: Fall, Spring, Summer.

**CHM 121 Chemistry and Society I**

3 credit hours/ 3 periods (3 lec.)

Basic chemistry and its relationship to everyday experiences. Includes classification and structure of matter, basic principles of chemical reaction and their environmental and societal impact.

Corequisite(s): CHM 121LB

Information: Designed for non-science majors, education majors, and the general public.

Offered: Fall.

**CHM 121IN Chemistry and Society I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Basic chemistry and its relationship to everyday experiences. Includes classification and structure of matter, basic principles of chemical reaction and their environmental and societal impact.

Information: Designed for non-science majors, education majors, and the general public. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**CHM 121LB Laboratory for Chemistry and Society I**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of CHM 121.

Corequisite(s): CHM 121

Offered: Fall.

**CHM 122 Chemistry and Society II**

3 credit hours/ 3 periods (3 lec.)

Continuation of CHM 121. Includes organic chemistry as it relates to consumer products and pollution of our environment. Also includes biochemistry and physiochemistry and their relationship to medicines, drugs, health and food products.

Prerequisite(s): CHM 121.

Corequisite(s): CHM 122LB

Offered: May not be offered this year, check class schedule.

**CHM 122IN Chemistry and Society II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CHM 121. Includes organic chemistry as it relates to consumer products and pollution of our environment. Also includes biochemistry and physiochemistry and their relationship to medicines, drugs, health and food products.

Prerequisite(s): CHM 121.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: May not be offered this year, check class schedule.

**CHM 122LB Laboratory for Chemistry and Society II**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of CHM 122.

Corequisite(s): CHM 122

Offered: May not be offered this year, check class schedule.

**CHM 123IN Chemistry and Art**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the relationship between the physical sciences and the visual arts. Includes an overview of art and science, material science applied to art and archaeology, color and art, painting, sculpture, photography, and the dimensions of the relationship between art and science.

Information: Integrated version of the course with the lecture/lab taught simultaneously.

Offered: Fall.

**CHM 125 Consumer Chemistry**

3 credit hours/ 3 periods (3 lec.)

An overview of the chemistry of everyday products and processes for the non-science major and no previous chemistry background is required. Includes the chemistry of toothpaste, deodorants, cosmetics, soaps and detergents, foods, fabrics, toys, paints, plastics and other products commonly found in the kitchen, laundry, bathroom, bedroom, and workshop.

Corequisite(s): CHM 125LB

Offered: May not be offered this year, check class schedule.

**CHM 125IN Consumer Chemistry**

4 credit hours/ 6 periods (3 lec., 3 lab)

An overview of the chemistry of everyday products and processes for the non-science major, and no previous chemistry background is required. Includes the chemistry of toothpaste, deodorants, cosmetics, soaps and detergents, foods, toys, paints, plastics and other products commonly found in the kitchen, laundry, bathroom, bedroom, and workshop.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Spring.

**CHM 125LB Consumer Chemistry**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of CHM 125.

Corequisite(s): CHM 125

Offered: May not be offered this year, check class schedule.

**CHM 128 Forensic Chemistry**

3 credit hours/ 3 periods (3 lec.)

Practice, evolution, and trends in the use of chemistry and physical science in forensic studies. Includes the study of scientific criminology, scientific methods, applications of chemistry in DNA, crime scene evidence analysis, ballistics and terrorism. Also includes the discussion of implications and effects of these applications on the law, courts, and society.

Corequisite(s): CHM 128LB

Recommendation: Consent of instructor is recommended before enrolling in this course.

Offered: May not be offered this year, check class schedule.



**CHM 128IN Forensic Chemistry**

4 credit hours/ 6 periods (3 lec., 3 lab)

Practice, evolution, and trends in the use of chemistry and physical science in forensics studies. Includes the study of scientific criminology, scientific methods, applications of chemistry in DNA, crime scene evidence analysis, ballistics and terrorism. Also includes the discussion of implications effects of these applications on the law, courts, and society.

Information: Consent of instructor is required before enrolling in this course. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**CHM 128LB Forensic Chemistry Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of CHM 128.

Corequisite(s): CHM 128

Offered: May not be offered this year, check class schedule.

**CHM 130 Fundamental Chemistry**

4 credit hours/ 4 periods (4 lec.)

Inorganic chemistry as a basis for the study of some life processes. Includes the classification, structure and general chemical behavior of inorganic matter.

Prerequisite(s): MAT 092 with a grade of C or better, or required score on the mathematics assessment test.

Corequisite(s): CHM 130LB

Information: Adapted to the needs of students in allied health programs.

Offered: Fall, Spring, Summer.

**CHM 130IN Fundamental Chemistry**

5 credit hours/ 7 periods (4 lec., 3 lab)

Inorganic Chemistry as a basis for the study of some life processes. Includes the classification, structure and general chemical behavior of inorganic matter.

Prerequisite(s): MAT 092 with a grade of C or better, or required score on mathematics assessment test.

Information: Adapted to the needs of students in allied health programs. IN is the integrated version of the course and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**CHM 130LB Fundamental Chemistry Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of CHM 130.

Corequisite(s): CHM 130

Offered: Fall, Spring, Summer.

**CHM 140 Fundamental Organic and Biochemistry**

4 credit hours/ 4 periods (4 lec.)

Continuation of CHM 130. Organic chemistry as the basis for the study of some important life processes. Includes the classification, structure and general chemical behavior of organic and biochemical systems.

Prerequisite(s): CHM 130 with a grade of C or better.

Corequisite(s): CHM 140LB

Information: Prerequisites may be waived with high school chemistry within the last three years, or consent of instructor. Adapted to the needs of students in nursing and other health professions.

Offered: Summer.

**CHM 140IN Fundamental Organic and Biochemistry**

5 credit hours/ 7 periods (4 lec., 3 lab)

Continuation of CHM 130. Organic chemistry as the basis for the study of some important life processes. Includes the classification, structure and general chemical behavior of organic and biochemical systems.

Prerequisite(s): CHM 130 lecture and lab with a grade of C or better.

Information: Prerequisite may be waived with high school chemistry within the last three years or consent of instructor. Adapted to the needs of students in nursing and other health professions. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**CHM 140LB Fundamental Organic and Biochemistry Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of CHM 140.

Corequisite(s): CHM 140

Offered: Summer.

**CHM 151 General Chemistry I**

4 credit hours/ 4 periods (4 lec.)

Introduction to the foundations of chemistry for upper-level sciences and engineering. Includes atomic structure, chemical bonding, reaction stoichiometry, behavior of gases, and reactions in solutions. Also includes an introduction to thermochemistry.

Prerequisite(s): Has both a Math and a Chemistry prerequisite. Minimum Math prerequisite: MAT 122 with a grade of C or better. Chemistry prerequisite: completion of CHM 080 or CHM 130 with grade of C or better; or placement into CHM 151 on the Chemistry assessment test.

Corequisite(s): CHM 151LB

Offered: Fall, Spring, Summer.

**CHM 151IN General Chemistry I**

5 credit hours/ 7 periods (4 lec., 3 lab)

Introduction to the foundations of chemistry for upper-level sciences and engineering. Includes atomic structure, chemical bonding, reaction stoichiometry, behavior of gases, and reactions in solutions. Also includes an introduction to thermochemistry.

Prerequisite(s): CHM 080 or 130 with a grade of C or better, OR placement into CHM 151 on the Chemistry assessment test, and MAT 122 with a grade of C or better.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**CHM 151LB General Chemistry I Lab**

1 credit hour/ 3 periods (3 lab)

Introduction to the foundations of chemistry for upper-level sciences and engineering. Includes atomic structure, chemical bonding, reaction stoichiometry, behavior of gases, and reactions in solutions. Also includes an introduction to thermochemistry.

Prerequisite(s): Has both a Math and a Chemistry prerequisite. Minimum math prerequisite: completion of MAT 122 with C or better. Chemistry prerequisite: completion of CHM 080 or CHM 130 with grade of C or better; or placement into CHM 151 on the Chemistry assessment test.

Corequisite(s): CHM 151

Offered: Fall, Spring, Summer.

**CHM 152 General Chemistry II**

4 credit hours/ 4 periods (4 lec.)

Continuation of CHM 151. Includes emphasis on certain chemical concepts such as chemical kinetics, equilibrium, acids and bases, thermodynamics, and electrochemistry.

Prerequisite(s): Has both a math and chemistry prerequisite. Math prerequisite: MAT 151 with a C or better. Chemistry prerequisite: CHM 151 with a grade of C or better.

Corequisite(s): CHM 152LB

Offered: Fall, Spring, Summer.

**CHM 152IN General Chemistry II**

5 credit hours/ 7 periods (4 lec., 3 lab)

Continuation of CHM 151. Includes emphasis on certain chemical concepts such as chemical kinetics, equilibrium, acids and bases, thermodynamics, and electrochemistry.

Prerequisite(s): Has both a math and chemistry prerequisite. Math prerequisite: Must have a completed MAT 151 with a C or better. Chemistry prerequisite: Must have completed CHM 151 with a grade of C or better.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**CHM 152LB General Chemistry II Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of CHM 152.

Corequisite(s): CHM 152

Offered: Fall, Spring, Summer.

**CHM 195 Introduction to Research in Chemistry**

4 credit hours/ 4 periods (4 lec.)

Introduction to the methods of research in chemistry. Includes scientific laboratory procedures, experimental design, scientific writing, scientific ethics, and current research in working laboratories.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**CHM 196LB Independent Studies in Chemistry**

1-4 credit hours/ 3-12 periods (3-12 lab)

Laboratory projects varying with students' interests and reasons for enrolling.

Offered: Fall, Spring.

**CHM 235 General Organic Chemistry I**

4 credit hours/ 4 periods (4 lec.)

Fundamentals of organic chemistry. Includes classification, occurrence, synthesis, analysis, stereo-chemistry and reaction mechanisms of important classes of organic compounds, namely alkanes, cycloalkanes, alkenes, alkynes and alkyl halides.

Prerequisite(s): CHM 152 with a grade of C or better.

Corequisite(s): CHM 235LB

Offered: Fall, Spring, Summer.



**CHM 235IN General Organic Chemistry I**

5 credit hours/ 7 periods (4 lec., 3 lab)

Fundamentals of organic chemistry. Includes classification, occurrence, synthesis, analysis, stereochemistry and reaction mechanisms of important classes of organic compounds, namely alkanes, cycloalkanes, alkenes, alkynes, and alkyl halides. Also includes application of the organic chemistry concepts addressed using a wide range of laboratory apparatus and procedures. Integrates laboratory safety skills and computer software applications related to chemistry.

*Prerequisite(s):* Completion of CHM 152 with a grade of C or better.

Information: IN class is an integrated presentation of CHM 235 and CHM 235LB.

Offered: Fall, Spring.

**CHM 235LB General Organic Chemistry I Lab**

1 credit hour/ 3 periods (3 lab)

Application of the organic chemistry concepts addressed in CHM 235, i.e. classification, occurrence, synthesis, analysis, stereochemistry and reaction to mechanisms of organic compounds, using a wide range of laboratory apparatus and procedures. Integrates laboratory safety skills and computer software related to chemistry.

*Prerequisite(s):* Completion of CHM 152 with a grade of C or better.

*Corequisite(s):* CHM 235

Offered: Fall, Spring, Summer.

**CHM 236 General Organic Chemistry II**

4 credit hours/ 4 periods (4 lec.)

Continuation of CHM 235 focusing on remaining classes of organic compounds, including alkynes, alcohols, ethers and epoxides, aldehydes, ketones, acids, acid derivatives, aromatics and nitrogen containing compounds. Includes an emphasis on synthesis and use of chemical and instrumental methods as means of identification and an introduction to biomolecules and/or polymers.

*Prerequisite(s):* Completion of CHM 235 with a grade of C or better.

*Corequisite(s):* CHM 236LB

Offered: Fall, Spring, Summer.

**CHM 236IN General Organic Chemistry II**

5 credit hours/ 7 periods (4 lec., 3 lab)

Continuation of CHM 235, focusing on the remaining classes of organic compounds, specifically dienes, alcohols, ethers and epoxides, aldehydes, ketones, acids, acid derivatives, aromatics, and nitrogen containing compounds and an introduction to biomolecules and/or polymers. Includes an emphasis on synthesis and use of chemical and instrumental methods as means of identification while in a laboratory setting using a wide range of laboratory apparatus and procedures. Integrates laboratory safety skills and computer software applications related to chemistry.

*Prerequisite(s):* Completion of CHM 235 with a grade of C or better.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring, Summer.

**CHM 236LB General Organic Chemistry II Lab**

1 credit hour/ 3 periods (3 lab)

Continuation of CHM 235LB, focusing on the remaining classes of organic compounds addressed in CHM 236, specifically dienes, alcohols, ethers and epoxides, aldehydes, ketones, acids and acid derivatives, aromatics and nitrogen containing compounds in a laboratory setting using a wide range of laboratory apparatus and procedures. Integrates laboratory safety skills and computer software applications related to chemistry.

*Prerequisite(s):* Completion of CHM 235 with a grade of C or better.

*Corequisite(s):* CHM 236

Offered: Fall, Spring, Summer.

**CHM 290 Chemistry Internship**

1-4 credit hours/ 1-4 periods (1-4 lec.)

Internship and work experience in a science field or laboratory. Setting, achieving, and evaluating goals for hands-on learning experiences in sciences. Development of skills and knowledge needed to work in a science field or laboratory.

Information: Consent of Internship instructor is required before enrolling in this course.

Offered: Fall, Spring.

**CHM 295LB Independent Research in Chemistry**

1-4 credit hours/ 3-12 periods (3-12 lab)

Experience in scientific laboratory research. Specific content to be determined by student and instructor.

Information: One semester of chemistry and consent of instructor is required before enrolling in this course. May be taken three times for a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**CHILD DEVELOPMENT ASSOCIATE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CDA 102 The Child's Total Learning Environment**

1 credit hour/ 1 period (1 lec.)

Analysis of the total learning environment for children. Includes establishing a learning environment, value in a child-oriented learning environment, indoor environment, learning centers, appropriate play materials, teacher responsibility of learning environment, outdoor space, changing the environment, and the community as a learning environment.

Offered: Spring.

**CDA 103 Curriculum Planning and Schedule Development**

1 credit hour/ 1 period (1 lec.)

Strategies for the creation of lesson plans and schedules for use in the classroom. Includes preparation of group and individualized lesson plans and schedules based on children's abilities, planning as a cooperative effort, foundations of events and activities, balancing variety in the classroom, individual center's philosophy in the planning process, flexibility in planning, and assessment and evaluation.

Offered: Fall, Spring, Summer.

**CDA 104 Ensuring a Safe Environment for Children**

1 credit hour/ 1 period (1 lec.)

Exploration of the issues of creating a safe environment for children. Includes planning for children's safety by providing them with the skills and information regarding safety rules and concerns. Also includes planning for reduction of accidents by center personnel and designation of areas of responsibility.

Offered: Fall, Spring, Summer.

**CDA 112 Guidance Principles for Encouraging Self-Discipline**

1 credit hour/ 1 period (1 lec.)

Development of guidelines for using positive discipline techniques in the classroom. Includes role modeling, social development and appropriate actions, program influences on children's behaviors and relationships, rules and limits, and difference between discipline and punishment.

Offered: Spring.

**CDA 114 Collecting, Organizing and Using Teaching Aids**

1 credit hour/ 1 period (1 lec.)

Survey of teaching aids used in the classroom. Includes individual children's portfolios, activity card file collection, picture and poster file, media resources, reference materials and professional literature, human and community resources file, and bulletin board files.

Offered: Fall.

**CDA 115 Supervision and Administration of Early Childhood Programs**

3 credit hours/ 3 periods (3 lec.)

Analysis of elements for planning, implementing, maintaining, and evaluating early childhood education programs. Includes regulations, health and safety issues, and staff selection, development, and supervision. Also includes management of facilities, budget, equipment, supplies, and arranging environment.

*Prerequisite(s):* MAT 082, REA 112, and WRT 100.

Information: Same as ECE 115.

Offered: Fall.

**CDA 119 Providing a Healthy Environment for Children**

1 credit hour/ 1 period (1 lec.)

Examination of wellness to benefit the early childhood classroom setting. Includes importance of healthy children, how diseases are spread, handwashing, sanitation and cleaning practices, illness in the child care setting, health records, hygiene and dental care, health education, parents role, and prevention of child abuse.

Offered: Fall, Spring, Summer.

**CDA 121 Techniques for Observing Children**

1 credit hour/ 1 period (1 lec.)

Development of techniques for observing, recording and interpreting behavior in children. Includes purpose of observation, observation and collecting information, observation and assessment techniques, interpreting observations, individual documentation, observation based curriculum planning, behavioral and developmental milestones, and sharing observations and assessments professionally.

Offered: Fall, Spring, Summer.

**CDA 126 Literature for Preschool Children**

1 credit hour/ 1 period (1 lec.)

Survey of materials and techniques for the selection and evaluation of children's literature. Includes the importance of literature for children, children's library area, general categories of books, importance of pictures or illustrations, respect for books, storytelling, reading aloud to children, and creating a story with children.

Offered: Spring.

**CDA 129 Organize Space, Materials and Equipment for Infants/Toddlers**

1 credit hour/ 1 period (1 lec.)

Exploration of how to effectively organize classroom space, materials and equipment for infants and toddlers. Includes licensing requirements, space planning, outdoor space, developmentally appropriate materials, basic equipment and furniture, and sharing information and resources with parents. Offered: Fall.

**CDA 138 Building Parent and Classroom Connections**

3 credit hours/ 3 periods (3 lec.)

Analysis of the specific attitudes, philosophies and practical techniques in building relationships with families for teachers. Includes families today, overview of family involvement, benefits of and barriers to teacher-family partnerships, at the beginning with parents and children, informal communications with families, parent-teacher conferences, home visits, families in the classroom, community involvement, working with families from diverse backgrounds and families in particular circumstances, resolving troublesome attitudes and behaviors, and parent-involvement programs that work. Offered: Fall, Spring, Summer.

**CDA 141 Fostering Communication and Language**

1 credit hour/ 1 period (1 lec.)

Examination of the techniques for fostering communication skills and language development. Includes defining communication skills, predictable stages of developing communication skills, language observation and assessment, communication with others, receptive communication skills, and receptive and expressive communication skills. Offered: Spring.

**CDA 142 Beginning Mathematical Concepts**

1 credit hour/ 1 period (1 lec.)

Analysis of general principles of mathematical concept acquisition. Includes competencies in mathematics such as classification, seriation, numbers, spatial relations, and temporal relations. Offered: Fall.

**CDA 143 Science and Discovery**

1 credit hour/ 1 period (1 lec.)

Theories, methods, and techniques for teaching science and discovery. Includes the learning, the process of discovery, initiating and integrating science experiences, creating a science area, finding natural science settings, and planning science experiences. Offered: Fall.

**CDA 151 Nutrition**

1 credit hour/ 1 period (1 lec.)

Examination of basic nutrition. Includes nutrition needs of young children; social, psychological, cultural and religious connections to food; mealtime experiences; plans for nutritional experiences and programs. Offered: Fall, Spring, Summer.

**CDA 152 Enhancing Questioning and Problem Solving Abilities**

1 credit hour/ 1 period (1 lec.)

Analysis of techniques for the development of question and problem solving abilities. Includes facts about problem solving, the steps involved, and factors to be considered. Also includes developing problem solving activities using individual and group settings. Offered: Fall.

**CDA 155 Understanding How Children Learn**

1 credit hour/ 1 period (1 lec.)

Exploration of the natural skills of children. Includes introduction of various theorists, ways children learn, conceptual learning, and the role of the teacher. Offered: Spring.

**CDA 161 Principles of Social Competence**

1 credit hour/ 1 period (1 lec.)

Analysis of self-concept in children. Includes self-concept/self-image, primary factors, uniqueness of each child, environment, accepting and expressing feelings appropriately, observation, expressing emotions, activities for expression of feelings, and exploration of feelings. Offered: Spring.

**CDA 170 Ages and Stages of Young Children: Prenatal Through Toddler**

2 credit hours/ 2 periods (2 lec.)

Examination of the developmental stages pre-birth through toddlerhood. Includes general principles and theories of development, biological and environmental factors, conception to birth, infant developmental, toddler developmental milestones, issues in infant care, and toddler care issues. Offered: Fall, Spring, Summer.

**CDA 173 Ages and Stages of Young Children: The Preschool Years**

1 credit hour/ 1 period (1 lec.)

Examination of the developmental stages of preschool children ages 18 months to 5 years. Includes general principles and theories of development, physical characteristics, pattern of motor skill development, cognitive development, socio-emotional development, early childhood programs, and developmental concerns and challenges. Offered: Fall, Spring, Summer.

**CDA 201 Music and Creative Movement**

1 credit hour/ 1 period (1 lec.)

Exploration of music and movement. Includes how to develop self-confidence and skills in music and movement. Also includes developing skills in singing with children, selecting appropriate music, using rhythm activities, encouraging creative movement, and using music with activities. Offered: Fall, Spring, Summer.

**CDA 202 Dramatic Play**

1 credit hour/ 1 period (1 lec.)

Strategies for using dramatic play for learning. Includes meaning of dramatic play, values of dramatic play, unlimited play, dramatic play in the learning environment, teacher's role, and observation and assessment. Offered: Fall, Spring, Summer.

**CDA 203 Creative Media**

1 credit hour/ 1 period (1 lec.)

Survey of principles, materials, and techniques used in developing creative media. Includes definition and values of creativity, creative development, creative media area, guidance in the creative media area, creative process and the product, creative media activities and experiences, creative experiences, and ongoing assessment. Offered: Fall, Spring, Summer.

**CDA 211 Small and Large Muscle Development**

2 credit hours/ 2 periods (2 lec.)

Examination of small and large muscle development and its relationship to cognitive learning. Includes overview of small/large muscle development, specific sequence, orderly process, practice, characteristics of the large and small muscle, activities and environment to promote muscle development, supervision and guidance, and observation and assessment. Also includes a variety of spontaneous and planned activities. Offered: Fall, Spring, Summer.

**CDA 222 Elements of Children's Culture**

1 credit hour/ 1 period (1 lec.)

Examination of the ways culture affects children's learning. Includes an overview of multiculturalism, cross-cultural competence, gender role identity, diverse abilities and special needs, responsive learning environment, and family and community involvement. Offered: Spring.

**CDA 224 Learning Theories and Cognitive Development Applications**

2 credit hours/ 2 periods (2 lec.)

Analysis of how babies grow and learn. Includes developmental milestones, egocentrism, cognitive development milestones, development of memory, concept formation and problem solving skills, basic concepts of infancy and toddlerhood, and sharing resource with parents. Offered: Fall.

**CDA 225 Language Development of Infants and Toddlers**

1 credit hour/ 1 period (1 lec.)

Examination of how language develops in infants and toddlers. Includes development of communication and language skills, language milestones, stimulating language development through developmentally appropriate activities, and developmental progress of individual children. Offered: Spring.

**CDA 227 Sensorimotor Learning and Physical Development**

3 credit hours/ 3 periods (3 lec.)

Examination of sensorimotor learning in infancy and toddlerhood. Includes sensorimotor and physical development theories, awareness of reflexes, general physical development, cognitive development, self help skills, and toilet training. Also includes ways to share information with parents. Offered: Fall.

**CDA 228 Principles of Social Competence of Infants and Toddlers**

1 credit hour/ 1 period (1 lec.)

Analysis of the development of trust and autonomy in infants and toddlers. Includes factors influencing the development of self-concept, individualized routine care, developmentally appropriate environmental design, individual differences, and partnership with parents. Offered: Fall.

**CDA 229 Child Development Associate Assessment Preparation**

3 credit hours/ 3 periods (3 lec.)

Strategies for completion of the CDA Assessment. Includes documentation requirements, resource file, direct assessment application form, and verification visit requirements.

Offered: Fall, Spring.

**CDA 235 Guidance and Discipline of Infants and Toddlers**

1 credit hour/ 1 period (1 lec.)

Examination of effective ways to guide and discipline infants and toddlers. Includes discipline versus punishment, appropriate discipline and guidance, specific guidance techniques, provide an appropriate environment for exploration, and communicating with parents.

Offered: Fall.

**CDA 256 Math for School Age Children**

1 credit hour/ 1 period (1 lec.)

Analysis of appropriate math concepts and activities for school age children. Includes the links between intellectual development and mathematical concepts learning. Also includes developing math concepts, teaching problem-solving, and exploring the strands of mathematics.

Offered: Fall.

**CDA 257 Record Keeping for the Family Child Care Provider**

1 credit hour/ 1 period (1 lec.)

Strategies for the development of a record keeping system to use in child care. Includes operating a small business and organizing records. Includes income tax forms, special tax liabilities and responsibilities, and important records to retain.

Offered: Summer.

**CDA 258 Family Child Care as a Small Business**

1 credit hour/ 1 period (1 lec.)

Examination of the aspects of family child care as a small business. Includes the role of the family child care provider, licensing and certification, insurance requirements, development of a business plan, and agreements between parents and providers.

Offered: Summer.

**CDA 259 Balancing Work and Family in a Family Child Care Setting**

1 credit hour/ 1 period (1 lec.)

Strategies for reaching a balance between work and family in the child care setting. Includes establishing an appropriate setting, planning the daily schedule, setting boundaries, keeping a balance in your own life, and communicating with parents. Also includes your role as a liaison between family, child, and parent.

Offered: Summer.

**CDA 271 Professionalism in Childcare**

1 credit hour/ 1 period (1 lec.)

Analysis of the history and ethics of early childhood professionals. Includes defining professionalism; examining the past, present and future; exploring professional values and ethics; continuing professional growth/education; and becoming an advocate for children and their families.

Offered: Fall, Spring, Summer.

**CDA 273 Ages and Stages: The Middle Childhood Years**

1 credit hour/ 1 period (1 lec.)

Examination of the stages of growth, motor development, during the middle childhood years (ages 6 to 12). Includes physical growth, motor development, logical thinking and language skills, and social and emotional growth. Also includes examining developmental concerns and challenges.

Offered: Fall, Spring, Summer.

**CDA 274 Emerging Literacy**

1 credit hour/ 1 period (1 lec.)

Analysis of the developmentally appropriate practices in the teaching of literacy. Includes creating the environment for young readers, working with young writers, developing a functional literacy environment, and the teacher's role in literacy.

Offered: Spring.

**CDA 275 Transitions**

1 credit hour/ 1 period (1 lec.)

Examination of the nature of transitions in the classroom. Includes introduction to transitions, selection of transitional activities, and transitions as part of the curriculum.

Offered: Spring.

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**CHINESE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CHI 101 Elementary Chinese (Mandarin) I**

5 credit hours/ 5 periods (5 lec.)

Introduction to the Mandarin Chinese language. Includes basic phonetic system of the Chinese language, basic Chinese grammar structures, reading simple texts, basic Chinese writing and Chinese culture. Also includes a foundation in listening, speaking, reading, writing, and cultural awareness.

Offered: Fall.

**CHI 102 Elementary Chinese (Mandarin) II**

5 credit hours/ 5 periods (5 lec.)

Continuation of CHI 101. Includes additional phonetic system of Chinese language, additional selection of grammar structures, additional reading Chinese, additional writing Chinese, and additional Chinese culture. Also includes an additional level of listening, speaking, reading, writing, and cultural awareness.

*Prerequisite(s):* CHI 101.

Offered: Spring.

**CHI 201 Intermediate Chinese I**

5 credit hours/ 5 periods (5 lec.)

Continuation of CHI 102. Includes intermediate selection of grammar structures, oral and aural transactions, political, economic, and social vocabulary in readings and writings, intermediate literary works, and norms, values, and beliefs.

*Prerequisite(s):* CHI 102.

Offered: May not be offered this year, check class schedule.

**CHI 202 Intermediate Chinese II**

5 credit hours/ 5 periods (5 lec.)

Continuation of CHI 201. Includes additional intermediate selection of grammar structures, intermediate oral, aural, and written transactions, response to complex topics, additional norms, values, and beliefs, and Chinese history and cultural aspects.

*Prerequisite(s):* CHI 201.

Offered: May not be offered this year, check class schedule.

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**COMMUNITY DEVELOPMENT EDUCATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CDE 101 Community Organizational Management and Leadership II**

1 credit hour/ 1 period (1 lec.)

Continuation of CDE 100. Includes a survey of skills necessary to research, design, develop and present a focused plan of action for meeting the needs of a neighborhood or community. Also includes strategic and action planning, environmental scanning, prioritization of needs, developing indicators of effectiveness, and presenting the plan orally and in writing.

Offered: May not be offered this year, check class schedule.

**CDE 105 Vision Portfolio**

1 credit hour/ 1 period (1 lec.)

Exploration into the stages of life and what that means to each individual through the development of a portfolio. Includes the preparation of materials that indicate the educational and personal paths, achievements, and goals in the individual's vision and their community.

Offered: May not be offered this year, check class schedule.

**CDE 110 Neighborhood Organization**

.25 credit hours/ .25 periods (.25 lec.)

Basic organization for the development of a neighborhood association. Includes the skills and components of organization, meeting strategies, running effective meetings, creating by-laws, and officer training.

Offered: May not be offered this year, check class schedule.

**CDE 112 Neighborhood Planning**

.25 credit hours/ .25 periods (.25 lec.)

Basic procedures for ensuring the future of the neighborhood association. Includes historical record keeping, inventory of assets, developing long-range plans, bringing plans into reality, evaluation, and plan revision.

Offered: May not be offered this year, check class schedule.

**CDE 113 Making a Difference in Your Neighborhood**

.25 credit hours/ .25 periods (.25 lec.)

Overview of how to find funding for your neighborhood.

Offered: May not be offered this year, check class schedule.



**CDE 114 Asset Mapping for Communities and Organizations**

.25 credit hours/ .25 periods (.25 lec.)

Overview of the benefits and uses of asset mapping for communities and organizations. Includes asset based community development, asset mapping, types of assets, and community partnership.

Offered: May not be offered this year, check class schedule.

**CDE 115 Effective Meetings**

.25 credit hours/ .25 periods (.25 lec.)

Introduction to the nature, functions and facilitation techniques of effective meetings. Also includes roles and responsibilities of individuals and groups in a meeting setting.

Offered: May not be offered this year, check class schedule.

**CDE 117 Financial Planning**

.75 credit hours/ .75 periods (.75 lec.)

Provides an overview of financial planning concepts and the financial and banking industry. Includes a financial planning focus on credit, banking fees, budgeting, saving, legal recourse, installment loans and mortgages.

Offered: May not be offered this year, check class schedule.

**CDE 118 Community Organizing**

3 credit hours/ 3 periods (3 lec.)

Overview, concepts, and techniques for a community organizer. Includes Asset Based Community Development (ABCD) approach to community organizing, asset mapping, and mobilization of assets.

Offered: May not be offered this year, check class schedule.

**CDE 121 Publicity through Media**

.25 credit hours/ .25 periods (.25 lec.)

Overview of how to communicate successfully through the media. Includes the discussion of hosts, audiences, formats, what makes a news story, tips on writing effective press releases, and protocol when speaking to the media.

Offered: May not be offered this year, check class schedule.

**CDE 122 How to Become a Non-Profit Organization**

.25 credit hours/ .25 periods (.25 lec.)

Overview of the process on how to become a non-profit organization.

Offered: May not be offered this year, check class schedule.

**CDE 126 Strength in Numbers: How to Get and Keep People Involved**

.25 credit hours/ .25 periods (.25 lec.)

Practical applications for community organizers/organizations with an understanding of why people get involved in community groups. Includes techniques for attracting people and keeping them involved in the group's activities.

Offered: May not be offered this year, check class schedule.

**CDE 127 Grant Reviewer Orientation**

.25 credit hours/ .25 periods (.25 lec.)

Overview of the grants process including eligibility, criteria, and sample grant reviews.

Offered: May not be offered this year, check class schedule.

**CDE 130 Dialogue Facilitation Skills**

.25 credit hours/ .25 periods (.25 lec.)

Introduction to the skills necessary for facilitating public deliberation forums. Includes techniques for reflection and public agenda setting after deliberation has occurred.

Offered: May not be offered this year, check class schedule.

**CDE 135 Ideas to Action: Neighborhood Project Planning**

.25 credit hours/ .25 periods (.25 lec.)

Introduction to the process of planning and implementing a community project. Includes techniques for developing the project idea, soliciting community participation, and creating a project budget and timeline.

Offered: May not be offered this year, check class schedule.

**CDE 180 Family Communication and Resiliency Skills**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Exploration of interpersonal dynamics within the context of a family. Includes overview of communication styles, family structural types, leadership roles and parenting styles. Also includes techniques to assess situations within particular social environments and methods to consistently consider positive solutions to difficult challenges in day-to-day family life.

Offered: May not be offered this year, check class schedule.

**CDE 185 Crisis Intervention Strategies**

3 credit hours/ 3 periods (3 lec.)

Introduction to crisis prevention strategies provided by the Pima County Attorney's Office, Victim Witness Program. Includes an opportunity to assess interest in volunteering for Victim Witness. Also includes evaluation of potential ability to effectively handle the types of situations volunteers encounter and their appropriateness in becoming a part of the Victim Witness Crisis Counselor Program.

Offered: May not be offered this year, check class schedule.

**CDE 186 Crisis Intervention Training and Special Populations**

3 credit hours/ 3 periods (3 lec.)

Introduction to crisis intervention strategies for law enforcement officers and other responses teams. Includes information on dealing with people with mental disorders, development disabilities, personality disorders and other special populations. Also includes a review of psychiatric medications, legal issues, and officer safety.

Offered: May not be offered this year, check class schedule.

**CDE 187 Victim Witness Crisis Intervention Training**

3 credit hours/ 3 periods (3 lec.)

Intensive training as a crisis intervention volunteer. Includes crisis intervention, communication and victimology, culture and values assessment, suicide, sexual assault, child victims, and domestic violence. Also includes responding to the needs of crime victims, witnesses, and their families.

Information: Course is sponsored by the Pima County Attorney's Office.

Offered: May not be offered this year, check class schedule.

**CDE 188 Neighborhood Coordinator Training**

3 credit hours/ 3 periods (3 lec.)

Examination of leadership skills and asset-based community building. Includes history of leadership, principle centered learning, vision/change process, and personal leadership skills.

Offered: May not be offered this year, check class schedule.

**CDE 189 Effective Case Management**

3 credit hours/ 3 periods (3 lec.)

Intensive training for effective case management aimed at personnel within the juvenile justice system. Includes an overview of the characteristics of effective case managers, communication and leadership skills, interview techniques, and evaluation. Also includes the importance of workplace environment as well as stress and time management techniques.

Offered: May not be offered this year, check class schedule.

**CDE 260 Mediation of Workplace Disputes**

3 credit hours/ 3 periods (3 lec.)

Mediation training from the higher education perspective. Includes tools necessary for facilitating mediation, organization systems and functions, differentiation between diverse complaints, suitable approaches for facilitation, issue sensitivity, and how hierarchical structures and systems impact the negotiation and agreement process.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

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**COMPUTER AIDED DESIGN/DRAFTING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CAD 096 Independent Study in Preparation for Computer Aided Drafting**

1-4 credit hours/ 3-12 periods (3-12 lab)

Development level of independent work on special project not included in regular courses. The student is required to obtain a sponsoring instructor in this area and establish objectives, a procedure, and a method of evaluation.

Information: Consent of instructor is required before enrolling in this course. May not be used for meeting program requirements.

Offered: May not be offered this year, check class schedule.

**CAD 101 Computer Aided Drafting I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Two-dimensional computer aided and traditional drafting concepts and techniques. Includes computer aided drafting procedures and methods, electronic file management, hard copy production, freehand sketching and visualization, industry standards, scale and dimensioning, and final project.

Information: For individuals with no computer and/or drafting experience.

Offered: Fall, Spring, Summer.

**CAD 104 Integrated Circuit Layout Fundamentals**

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles and concepts of integrated circuit layout. Includes basic electronics, fundamentals of integrated circuits, circuit design, electronic file management, schematic diagram, and physical layout overview.

Prerequisite(s): TEC 100 or concurrent enrollment.

Corequisite(s): CAD 114

Offered: May not be offered this year, check class schedule.



**CAD 114 Electronic Manufacturing Processes**

2 credit hours/ 2 periods (2 lec.)

Principles and concepts of integrated circuit manufacturing processes. Includes integrated circuit device physics, semiconductor fabrication, failure mechanisms, resistors, capacitors, diodes, and metal-oxide semiconductor (MOS) transistors. Offered: May not be offered this year, check class schedule.

**CAD 116 Electronic Print Reading**

2 credit hours/ 2 periods (2 lec.)

Principles of electronic print reading. Includes print and manufacturing terms, print fundamentals and standards, schematic and interconnection diagram drawings, cable assembly drawings, print analysis, and change paper procedures. Offered: May not be offered this year, check class schedule.

**CAD 117 Print Reading and Sketching for Manufacturing**

4 credit hours/ 5 periods (3 lec., 2 lab)

Principles and concepts of print reading and technical freehand sketching. Includes common print and manufacturing terms, print fundamentals and standards, freehand sketching applications, and print analysis. Offered: Fall, Spring.

**CAD 151 Computer Aided Drafting II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of Computer Aided Drafting I. Includes block attributes, external references, adaptive scaling, 3-D modeling applications, shading and rendering of 3-D models, layer usage, hard copy techniques and procedures, utilization, and intermediate file management procedures.

Prerequisite(s): CAD 101.

Offered: Fall, Spring.

**CAD 152 Mechanical Computer Aided Drafting and Design I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Basic concepts, techniques, and applications for mechanical drafting. Includes mechanical design fundamentals and standards, advanced Computer Aided Drafting (CAD) applications, three dimensional (3D) solid modeling techniques, and hard copy techniques and procedures.

Prerequisite(s): CAD 101.Recommendation: Completion of CAD 151, 172 before enrolling in this course.

Offered: Fall, Spring, Summer.

**CAD 153 Electro-Mechanical Computer Aided Drafting and Design I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Basic concepts, techniques, and applications for electronic drafting. Includes electronic drafting fundamentals and standards, electronic component and schematic applications, electronics theory, Computer Aided Drafting (CAD) techniques, and file management and hard copy techniques and procedures.

Prerequisite(s): CAD 101.

Offered: Fall, Spring.

**CAD 154 Integrated Circuit Layout Design I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles and concepts of integrated circuit layout. Includes basic electronics, fundamentals of integrated circuits, manufacturing process, circuit design, UNIX operating system, schematic diagram, and physical layout overview.

Prerequisite(s): CAD 104 and TEC 100.

Offered: May not be offered this year, check class schedule.

**CAD 155 Residential CAD and Design**

4 credit hours/ 6 periods (3 lec., 3 lab)

Beginning level Computer Aided Drafting (CAD) of single family detached dwellings. Includes residential CAD skills, site, foundation, floor and roof framing, mechanical, plumbing, and electrical plans, building and wall sections, building elevations, and working drawing coordination.

Prerequisite(s): CAD 101.Corequisite(s): CAD 151

Offered: Fall, Spring, Summer.

**CAD 158 Computer Aided Drafting Fundamentals for Interior Design**

4 credit hours/ 6 periods (3 lec., 3 lab)

Two-dimensional computer-aided drafting concepts/techniques for Interior Design. Includes drafting methods and procedures, file management, hard copy production, industry standards, use of scale, dimensioning, and portfolio development.

Recommendation: Completion of IDE 111, 122 before enrolling in this course.

Information: If the student is in the Interior Design program, it is recommended that IDE 111 and 122 be taken before CAD 158.

Offered: Fall, Spring.

**CAD 159 Landscape Computer Aided Drafting and Design I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Computer Aided Drafting (CAD) application specific to landscape design professions. Includes review of CAD skills, block functions, Internet applications, three-dimensional design, presentation drawings, building systems, working drawings, and working drawings coordination.

Prerequisite(s): CAD 101.

Offered: Fall.

**CAD 172 Geometric Dimensioning and Tolerancing**

3 credit hours/ 3 periods (3 lec.)

Establishing controls on sizes and allowances of mechanical parts. Includes definitions and rules, form tolerances, datums, orientation controls, location controls, runout, and profile.

Prerequisite(s): CAD 152 or concurrent enrollment.Corequisite(s): CAD 152

Information: Prerequisites may be waived if equivalent print reading experience is documented. See a CAD instructor or advisor.

Offered: Fall, Spring.

**CAD 185 Three-Dimensional Residential Drafting and Design**

4 credit hours/ 6 periods (3 lec., 3 lab)

Beginning level Computer Aided Drafting (CAD) three-dimensional (3-D) residential concepts, techniques, and problems. Includes 3-D wire frame, surface, and solid modeling applications, shading and rendering of 3-D models and hard copy techniques and procedures.

Prerequisite(s): CAD 101.

Information: Prerequisites may be waived if CAD drafting experience is documented. See a CAD instructor or advisor.

Offered: Fall, Spring.

**CAD 196 Independent Study in Computer Aided Drafting: 100 Level**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent work at the 100 level on a special project not included in regular courses. The student is required to obtain a sponsoring CAD instructor and establish objectives, a procedural method, and a method of evaluation.

Prerequisite(s): CAD 101.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**CAD 199 Introduction to Co-op: Computer Aided Drafting**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

Corequisite(s): CAD 199WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**CAD 199WK Co-op Work: Computer Aided Drafting**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

Corequisite(s): CAD 199

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

**CAD 202 Mechanical Computer Aided Drafting and Design II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 152. Includes review of mechanical design fundamentals and standards, advanced Computer Aided Drafting (CAD) applications, advanced three dimensional (3D) solid modeling techniques and hard copy techniques and procedures.

Prerequisite(s): CAD 152.Recommendation: Completion of CAD 172 before enrolling in this course or concurrent enrollment.

Offered: Fall.

**CAD 203 Electro-Mechanical Computer Aided Drafting /Design II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 153. Includes standards for packaging, fastener library, 3-D sheet-metal enclosures, production drawing sheets, materials and fastening systems for enclosures, and hard copy techniques and procedures. Also includes sheet-metal modeling in AutoCAD 3-D and Inventor.

Prerequisite(s): CAD 153.Corequisite(s): CAD 151

Offered: May not be offered this year, check class schedule.

**CAD 204 Integrated Circuit Layout Design II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 154. Principles and concepts of analog layout techniques. Includes metal-oxide semiconductor (MOS) layout, floorplanning, resistors, capacitors, bipolar devices, diodes, engineering concerns, layout concerns, and layout versus schematic verification (LVS).

Prerequisite(s): CAD 154.

Offered: May not be offered this year, check class schedule.

**CAD 206 Commercial Computer Aided Drafting/Design I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Computer Aided Drafting (CAD) of a commercial building at the intermediate level. Includes intermediate commercial CAD skills, site, foundation, floor, roof framing, reflected ceiling, mechanical, plumbing, and electrical plans, building and wall sections, building elevations, working drawing coordination, special construction applications, and drawing coordination, special construction applications, and 3D modeling.

Prerequisite(s): CAD 151, 155.

Offered: Fall.

**CAD 207 Civil Computer Aided Drafting/Design I**

4 credit hours/ 6 periods (3 lec., 3 lab)

Computer Aided Drafting (CAD) specific to sites for construction of buildings, roads, and utilities at the intermediate level. Includes intermediate civil drafting technology, intermediate surveying, intermediate location and direction, intermediate mapping, intermediate legal descriptions and plot plans, intermediate contour lines, intermediate profiles, intermediate road layout, intermediate earthwork, intermediate Geographic Information Systems (GIS).

Prerequisite(s): CAD 151, 155.

Offered: Fall.

**CAD 208 Interior Computer Aided Drafting and Design II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 158 at the intermediate level. Includes intermediate level interior design CADD skills, block functions, Internet applications, three-dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

Prerequisite(s): CAD 158.

Offered: May not be offered this year, check class schedule.

**CAD 209 Landscape Computer Aided Drafting/Design II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 159 at the intermediate level. Includes intermediate level design CAD skills, block functions for landscape, Internet applications for landscape, three-dimensional design for landscape, presentation drawings for landscape, landscape systems, working drawings for landscape, and working drawing coordination for landscape.

Prerequisite(s): CAD 159.

Offered: May not be offered this year, check class schedule.

**CAD 222 Mechanical Computer Aided Drafting/Design II: Inventor**

4 credit hours/ 6 periods (3 lec., 3 lab)

Software Beginning level parametric modeling mechanical concepts, techniques, and problems using Inventor software. Includes parametric modeling, working drawings, assemblies, animation, and plotting techniques.

Prerequisite(s): CAD 151, 152, and 172.

Information: Solid modeling experience is required before enrolling in this course.

Offered: Spring.

**CAD 232 Mechanical Computer Aided Drafting/Design IV:**

4 credit hours/ 6 periods (3 lec., 3 lab)

Inventor Software Continuation of CAD 222 at the advanced level. Includes sheet metal parts, assemblies, working drawings, and plotting techniques.

Prerequisite(s): CAD 222

Offered: May not be offered this year, check class schedule.

**CAD 252 Mechanical CADD III: ProE Software**

4 credit hours/ 6 periods (3 lec., 3 lab)

Beginning level parametric modeling mechanical concepts, techniques, and problems using ProE software. Includes geometric dimensioning and tolerancing fundamentals and standards, parametric modeling techniques, geometric dimensioning and tolerancing applications, and hard copy techniques and procedures.

Prerequisite(s): CAD 151, 152, and 172.

Information: Solid modeling experience is required before enrolling in this course.

Offered: Spring.

**CAD 253 Electro-Mechanical Computer Aided Drafting/Design III**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 203. Includes concepts, techniques, and applications for electro-mechanical design and product development. Also includes electro-mechanical design fundamentals and standards, advanced electronic symbol library, design applications, mechanical assembly techniques, and hard copy techniques and procedures.

Prerequisite(s): CAD 203.

Offered: May not be offered this year, check class schedule.

**CAD 254 Integrated Circuit Layout Design III**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 204. Advanced principles and concepts of integrated circuit layout design. Includes advanced layout techniques, advanced cell construction techniques, advanced UNIX operating system use, advanced design rules check (DRC) techniques, and advanced layout versus schematic (LVS) check techniques.

Prerequisite(s): CAD 204.

Offered: May not be offered this year, check class schedule.

**CAD 256 Commercial Computer Aided Drafting/Design II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 206 at the advanced level. Includes advanced level CADD skills, advanced level commercial project programming, advanced level site, foundation, floor, roof framing, mechanical, plumbing, and electrical plans, building and wall sections, building elevations, working drawing coordination, special construction applications, model energy code, and 3D modeling.

Prerequisite(s): CAD 206.

Offered: Spring.

**CAD 257 Civil Computer Aided Drafting/Design II**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 207 at the advanced level. Includes advanced civil drafting technology, advanced surveying, advanced location and direction, advanced mapping, advanced legal descriptions and plot plans, advanced contour lines, advanced profiles, advanced road layout, advanced earthwork, and advanced Geographic Information Systems (GIS).

Prerequisite(s): CAD 207.

Offered: Spring.

**CAD 258 Interior Computer Aided Drafting/Design III**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 208 at the advanced level. Includes advanced level interior design CAD skills, block functions, Internet applications, three-dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

Prerequisite(s): CAD 208.

Offered: May not be offered this year, check class schedule.

**CAD 259 Landscape Computer Aided Drafting/Design III**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 209 at the advanced level. Includes advanced level design CADD skills, block functions for landscape, Internet applications for landscape, three-dimensional design for landscape, presentation drawings for landscape, landscape systems, working drawings and coordination for landscape.

Prerequisite(s): CAD 209.

Offered: May not be offered this year, check class schedule.

**CAD 280 Computer Aided Drafting/Design Portfolio**

1 credit hour/ 1 period (1 lec.)

Identification of portfolio content. Includes project parameters, portfolio presentation, portfolio development, and critique.

Prerequisite(s): CAD 202, or 203, or 204, or 205, or 206 or 207.

Offered: Fall, Spring.

**CAD 282 Mechanical CADD IV: ProE Software**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 252. Includes advanced level parametric modeling applications, shading and rendering of parametric models, constructing mechanical assemblies, and hard copy techniques and procedures.

Prerequisite(s): CAD 252.

Offered: May not be offered this year, check class schedule.

**CAD 287 Three-Dimensional Civil Design and Drafting III**

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of CAD 237 at the advanced level. Includes three-dimensional (3-D) civil wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

Prerequisite(s): CAD 237.

Offered: May not be offered this year, check class schedule.

**CAD 296 Independent Study in Computer Aided Drafting: 200 Level**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent work at the 200 level on a special project not included in regular courses. The student is required to obtain a sponsoring CAD instructor, and establish objectives, a procedural method, and a method of evaluation.

Prerequisite(s): CAD 101.

Offered: May not be offered this year, check class schedule.

**CAD 299 Introduction to Co-op: Computer Aided Drafting**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education for second-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience.

Corequisite(s): CAD 299WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**CAD 299WK Co-op Work: Computer Aided Drafting**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

Corequisite(s): CAD 299

Offered: May not be offered this year, check class schedule.

## COMPUTER INFORMATION SYSTEMS

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### CIS 100 Introduction to Computers

3 credit hours/ 3 periods (3 lec.)

Introduction to computer information systems. Includes overview and concepts of computer components, operating systems, software applications, database, e-commerce, multi-media, security, application of information technology networking, privacy, globalization, and ethics. Also includes use, history, structure and research techniques on the Internet.

Offered: Fall, Spring, Summer.

### CIS 101 Survey of Information Technology Careers

1 credit hour/ 1 period (1 lec.)

Overview to the concepts and opportunities of information technology careers. Includes information technology in the organizational structure, information technology careers, job market opportunities in the information technology industry.

Offered: Fall, Spring.

### CIS 103 Microsoft Windows XP Professional Administration

4 credit hours/ 4 periods (4 lec.)

Knowledge and skills necessary to perform day-to-day administration tasks in a Microsoft Windows XP based network. Includes Windows Network Administration, Windows Operating System, user and group accounts, network resource security, print server administration, resource and event audits, and resource monitoring.

Information: Preparation for Microsoft certification examination.

Offered: Fall, Spring.

### CIS 119 Network Essentials

3 credit hours/ 3 periods (3 lec.)

Comprehensive introduction to computer networks and data communications. Includes computer networks and services, transmission media and connections, network models, popular protocol suites, other network issues, and network operating systems.

Recommendation: Completion of CIS 103 before enrolling in this course.

Offered: Fall, Spring, Summer.

### CIS 121 Web Publishing

3 credit hours/ 3 periods (3 lec.)

Introduction to Web site design using the Hypertext Markup Language (HTML) to author pages containing titles, images, lists, image maps, tables, frames, and Cascading Style Sheets. Includes World Wide Web history and development, web servers and Hypertext Transport Protocol (HTTP), web browsers, HTML standards, document design, HTML lists, designing tables and using frames on a web page, and graphics. May include client-side and/or server-side scripting.

Prerequisite(s): CIS 100.

Recommendation: Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring, Summer.

### CIS 129 Programming and Problem Solving I

5 credit hours/ 5 periods (5 lec.)

Introduction to personal and business computer systems. Includes components of a computer system, the Internet, networks, advantages and disadvantages or programming languages, traditional languages, native code and GUI object orientated languages, source code versus executable code, and data structures and data representation. Also includes language statements, expressions components, control structures, problem solving techniques, program test data, debugging, and termination, and solving simple problems and creating programs using QBASIC.

Prerequisite(s): MAT 122 or concurrent enrollment.

Offered: Fall, Spring.

### CIS 131 Programming and Problem Solving II

5 credit hours/ 5 periods (5 lec.)

Continuation of CIS 129. Includes developing software using multi-dimensional arrays with structured elements, file handling of both text and binary typed texts, sorting and searching models. Also includes requirements for planning, good coding practices, documentation, and applications to both numerical and business oriented problems.

Prerequisite(s): CIS 129.

Information: Programming assignments will use the C++ language.

Offered: Fall, Spring.

### CIS 136 Microcomputer Components

3 credit hours/ 3 periods (3 lec.)

An overview of the primary components of common microcomputer systems. Includes systems components, systems upgrades, printer selection, installation and maintenance, disk drive selection, additional input/output devices, selecting and configuring a system, and other microcomputer topics.

Offered: Fall, Spring, Summer.

### CIS 137 Introduction to the UNIX Operating System

3 credit hours/ 3 periods (3 lec.)

Principles, tools and history of the UNIX and Linux operating systems. Includes utilities, file structure, text editors, tools, documentation, networking. Also includes bash or sh shell use and script programming.

Recommendation: Completion of CIS 100 before enrolling in this course.

Offered: Fall, Spring.

### CIS 141 Introduction to VB.NET

4 credit hours/ 4 periods (4 lec.)

Introduction to the Visual Basic.NET programming language. Includes Microsoft .NET, .NET framework, common language runtime, getting started with Visual Basic.NET (VB.NET), and object-oriented programming. Also includes user interface programming, VB.NET and the .NET framework, and using ADO.NET in VB.NET.

Prerequisite(s): CIS 129.

Offered: Fall.

### CIS 142 Introduction to C#

4 credit hours/ 4 periods (4 lec.)

Introduction to Microsoft's .NET Programming Language C#. Includes introduction and simple compilation and execution of programs from the Visual Studio IDE, data types and declarations, using methods, creating classes and objects, selection and repetition, and creating and using arrays. Also includes inheritance, exception handling, GUI objects and controls from the Visual Studio IDE, and handling events.

Recommendation: Completion of CIS 100 or prior programming experience before enrolling in this course.

Offered: Spring.

### CIS 162 Database Design and Development

4 credit hours/ 4 periods (4 lec.)

Introduction to database concepts and terminology. Includes file systems and databases, the relational database model, entity relationship modeling, normalization, database design, distributed database management systems, and other systems.

Prerequisite(s): CSA 170.

Corequisite(s): CIS 182

Offered: Fall.

### CIS 170 CISCO I: Networking Fundamentals

5 credit hours/ 5 periods (5 lec.)

Emphasis on the OSI model and industry standards. Includes networking topologies, IP addressing, subnet masks, basic network design and cable installation. Also includes preparation for Cisco Certification examination.

Prerequisite(s): CIS 136.

Recommendation: Consult instructor for alternative prerequisites before enrolling.

Offered: Fall, Spring.

### CIS 171 CISCO II: Networking Router Technologies

5 credit hours/ 5 periods (5 lec.)

Knowledge of skills to install, configure, customize, maintain and troubleshoot Cisco routers and components. Includes preparation for Cisco certification examination.

Prerequisite(s): CIS 170.

Recommendation: Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring.

### CIS 172 CISCO III: Advanced Routing and Switching

5 credit hours/ 5 periods (5 lec.)

Development of knowledge and skills to configure advanced routing protocols, Local Area Networks (LANs), and LAN switching. Includes design and management of advanced networks and preparation for Cisco certification examination.

Prerequisite(s): CIS 171.

Recommendation: Consult instructor for alternative prerequisites before enrolling.

Offered: Fall, Spring.

### CIS 173 CISCO IV: Project Based Learning

5 credit hours/ 5 periods (5 lec.)

Design and configuration of advanced wide area network (WAN) projects using Cisco IOS command set. Includes prep for Cisco certification examination.

Prerequisite(s): CIS 172.

Recommendation: Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring.

### CIS 174 Introduction to Oracle Database

3 credit hours/ 3 periods (3 lec.)

Introduction to the Oracle relational database management system. Includes creating and modifying database tables, using queries, introduction to Procedure Language/Structured Query Language (PL/SQL), and creating forms, reports, and an integrated database application.

Corequisite(s): CIS 162

Offered: May not be offered this year, check class schedule.



**CIS 180 Introduction to SQL and PL/SQL**

4 credit hours/ 4 periods (4 lec.)

Extensive introduction to data-server technology covering concepts of both relational and objects relational databases and SQL and PL/SQL programming language. Includes creation/maintenance of database objects, storage, retrieval, manipulation of data. Also includes creating PL/SQL blocks of application code that can be shared by multiple forms, reports, data management applications.

*Prerequisite(s):* CIS 106 and 129.*Recommendation:* Experience using a GUI interface before enrolling in this course. Consult instructor for alternative prerequisites.

Offered: May not be offered this year, check class schedule.

**CIS 181 Introduction to Oracle Designer**

4 credit hours/ 4 periods (4 lec.)

Task-based essential skills for using Oracle Designer to develop application systems. Includes recording business requirements, refining the data and application design, and generating database, objects and simple Oracle Developer and WebServer applications, and a single, small-scale Oracle Designer project. Also includes the flow of information through the Repository, and the default behavior of the Oracle Designer toolset.

*Prerequisite(s):* CIS 106.*Recommendation:* Consult instructor for alternative prerequisites before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**CIS 182 Introduction to ANSI SQL**

3 credit hours/ 3 periods (3 lec.)

Introduction to the American National Standard Institute (ANSI) Structured Query Language (SQL). Includes relational databases, SQL basic and nomenclature, simple queries, search conditions and sorting, single table query processing and unions, simple and multi-table joins, summary queries using columns, group queries, and subqueries and query expressions. Also includes adding, deleting, and modifying data from the database, referential integrity and constraints, creating databases, creating, removing and modifying tables, and defining constraints.

*Corequisite(s):* CIS 162

Offered: Fall.

**CIS 183 Introduction to Extensible Markup Language (XML)**

3 credit hours/ 3 periods (3 lec.)

Introduction to Extensible Markup Language (XML) which provides a format for describing data and enables the separation of presentation from data. Includes creating an XML document, binding XML data, document type definition, namespace and schemas, formatting with Cascading Style Sheets, and introduction to Extensible Stylesheet Language Transformation (XSLT).

*Recommendation:* Coursework or experience with Hypertext Markup Language (HTML) is strongly recommended before enrolling in this course.

Offered: Spring.

**CIS 184 Introduction to SQL Server**

3 credit hours/ 3 periods (3 lec.)

Introduction to Microsoft Structured Query Language (SQL) Server relational database management system. Includes fundamentals of SQL server architecture, relational database components, administration tools, and communication, server, and logical database components.

*Corequisite(s):* CIS 162

Offered: May not be offered this year, check class schedule.

**CIS 187 Data Processing Projects I**

1-3 credit hours/ 3-9 periods (3-9 lab)

Provides practical work experience with academic study. Includes problem solving, job site interpersonal relations, and directed independent studies of computer-related topics. Also includes lab exercises involving operating system tasks, word processing, spreadsheet, electronic mail, and the Internet.

*Recommendation:* Completion of four courses in the Computer Science program before enrolling in this course.

Offered: Fall, Spring.

**CIS 199 Introduction to Co-op: Computer Information Systems**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

*Corequisite(s):* CIS 199WK

Offered: May not be offered this year, check class schedule.

**CIS 199WK Co-op Work: Computer Information Systems**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

*Corequisite(s):* CIS 199

Offered: May not be offered this year, check class schedule.

**CIS 220 Novell NetWare Networking and Administration**

4 credit hours/ 4 periods (4 lec.)

Administration of microcomputer networks using Novell NetWare. Includes networking fundamentals, computer networking protocols, NetWare server installation and configuration, maintenance, operation and administration.

*Prerequisite(s):* CIS 119.*Recommendation:* Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Spring.

**CIS 221 Microsoft Windows Server**

4 credit hours/ 4 periods (4 lec.)

Knowledge and skills necessary to install, configure, customize, optimize networks, integrate, and troubleshoot Windows server. Includes overview of Windows networking, managing Windows server, Windows components, and Internetworking and Intranetworking. Also includes active directory services, advanced file systems, Windows security, booting Windows, and Windows application servers.

*Prerequisite(s):* CIS 103.

Information: Preparation for Microsoft certification examination.

Offered: Fall, Spring.

**CIS 222 Implementing Windows Network Infrastructure**

4 credit hours/ 4 periods (4 lec.)

Knowledge and skills to install, configure, maintain, and support a Microsoft Windows network infrastructure. Includes Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), Windows Internet Name Service (WINS), traffic security, remote access, network router, remote installation, connectivity with other operating systems, and Web server.

*Prerequisite(s):* CIS 221.

Information: Preparation for Microsoft certification examination.

Offered: Spring.

**CIS 223 Implementing Windows Directory Services**

4 credit hours/ 4 periods (4 lec.)

Knowledge and skills to install, configure, and administer Microsoft Windows Active Directory services. Includes active directory structure, Active Directory directory services, Domain Name System (DNS), group policy implementation, user accounts, software development, group policy security, and administration of active directory objects.

*Prerequisite(s):* CIS 221.

Offered: Fall.

**CIS 224 Designing Windows Network Security**

4 credit hours/ 4 periods (4 lec.)

Knowledge and skills to analyze business requirements and processes to design a security solution for a Microsoft Windows network. Includes technical requirements, security requirements, security solution on a Windows network, security solution for access between networks, and security for communication channels.

*Prerequisite(s):* CIS 223.

Information: Preparation for Microsoft certification examination.

Offered: Spring.

**CIS 225 Linux (UNIX) System and Network Administration**

4 credit hours/ 4 periods (4 lec.)

Operations and network administration of the Linux (UNIX) system. Includes background review, basic Linux installation installing software packages, network file services configuration, Apache web server, and file transfer protocol (FTP).

*Prerequisite(s):* CIS 137.

Offered: Fall, Spring.

**CIS 226 Advanced Linux Networking**

4 credit hours/ 4 periods (4 lec.)

Advanced concepts in Linux and UNIX networking. Includes NFS, LDAP, firewalls, security and user administration.

*Prerequisite(s):* CIS 225.

Offered: Spring.

**CIS 228 Fundamentals of Network Security**

4 credit hours/ 4 periods (4 lec.)

Introductory overview of security measures for computer networks. Includes authentication methods and techniques, attacks and malicious code, remote access concepts, e-mail and web security, directory and file transfer services, and wireless protocols and security. Also includes hardware devices, topologies and security, methods of intrusion detection, establishing security baselines, introduction to cryptography, disaster recovery policies and procedures, and forensics, risk management, and auditing measures.

*Recommendation:* Completion of CIS 119 before enrolling in this course.

Information: This course prepares students to take the CompTIA Security + Exam.

Offered: Fall.



**CIS 231 Programming Fundamentals**

4 credit hours/ 4 periods (4 lec.)

Introduction to problem solving using structured and object-oriented programming techniques. Includes basic structure and mechanisms required to compile and run simple programs, control structures, data types, arithmetic operations, repetition and input/output, and use files and arrays. Also includes introduction and comparison of object-oriented and procedural programming, abstraction and encapsulation.

*Prerequisite(s):* CIS 100 and MAT 151.

Information: The basic elements of the Java programming language will be introduced to illustrate concepts.

Offered: May not be offered this year, check class schedule.

**CIS 241 Advanced Visual Basic.NET Programming**

4 credit hours/ 4 periods (4 lec.)

Advanced course in Visual Basic.NET programming with special emphasis on the new .NET Framework and how it is used to create distributed applications. Includes review of VB.NET basics, basic Web programming, server-side Web programming with VB.NET, accessing data with VB.NET, intro and advanced VB.NET applications.

*Prerequisite(s):* CIS 141.

Offered: Spring.

**CIS 250 Introduction to Assembly Language**

3 credit hours/ 3 periods (3 lec.)

Beginning 80x86 assembly language programming. Includes various number systems, machine organization and different addressing methods. Also includes array processing, indexing, sorting, stack parameter passing, internal and external procedures, string functions, data packing, logical and bit-level operations, DOS and BIOS interrupts, macros and file I/O.

*Prerequisite(s):* CIS 131.

*Recommendation:* Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Spring.

**CIS 252 SQL Server Programming with Transact SQL**

4 credit hours/ 4 periods (4 lec.)

A complete introduction to Transact Structured Query Language (SQL). Includes SQL server overview, programming SQL server, creating and managing databases, creating data types and tables, implementing data integrity and planning, creating and maintaining indexes. Also includes implementing views, stored procedures, user-defined functions and triggers, programming across multiple servers, optimizing query performance, analyzing queries, and managing transactions and locks.

*Corequisite(s):* CIS 254

*Recommendation:* Understanding of programming basics such as variables, data types and procedural programming before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**CIS 254 SQL Server Administration**

4 credit hours/ 4 periods (4 lec.)

Installation and configuration of the Microsoft SQL Server database management system. Includes skills to administer and troubleshoot the system.

*Prerequisite(s):* CIS 162.

Offered: May not be offered this year, check class schedule.

**CIS 255 Database Administration with Oracle**

4 credit hours/ 4 periods (4 lec.)

Implementation and administration of an Oracle database management system. Includes Oracle architecture overview, database administrator tools, creating and Oracle instance, data dictionary views and control files, redo log files and diagnostic files, and storage concepts and settings. Also includes table management, index management, data integrity constraints, users and resource control, and database roles.

*Prerequisite(s):* CIS 162 and 174.

Offered: May not be offered this year, check class schedule.

**CIS 265 The C Programming Language**

4 credit hours/ 4 periods (4 lec.)

Principles and syntax of ANSI Standard C and many of the common library functions. Includes writing C programs in portable code to facilitate systems programming concepts.

*Corequisite(s):* CIS 250

Offered: Fall.

**CIS 266 CGI Programming with PERL**

3 credit hours/ 3 periods (3 lec.)

Development of CGI scripts using Perl. Includes producing efficient and effective scripts. Also includes creating interactive Web pages using forms, post processing, CGI graphics, and persistent cookies.

*Prerequisite(s):* CIS 121 and 265.

Offered: May not be offered this year, check class schedule.

**CIS 269 Data Structures**

5 credit hours/ 5 periods (5 lec.)

Advanced topics in computer science and programming in C. Includes software design and development, testing and validation, and the algorithmic process. Also includes dynamic allocation, advanced sort and search algorithms,

recursion, stacks, queues, linked lists, trees, hash tables, and graphs.

*Prerequisite(s):* CIS 265.

Offered: Spring.

**CIS 273 Advanced Web Development**

4 credit hours/ 4 periods (4 lec.)

Advanced web development including design and implementation of database web application. Includes use of HTML, scripting languages such as vbScript, JavaScript or CGI Perl, client and server scripting, active server pages, Java Applets, Active X components, database usage, debugging and deployment of a web application. Also includes discussion of various database types.

*Prerequisite(s):* CIS 121.

Offered: Spring.

**CIS 274 PHP and MySQL Web Development**

4 credit hours/ 4 periods (4 lec.)

Introduction to PHP programming language and MySQL database system and their application to building entry-level Web applications. Includes writing PHP programs for processing, storing and retrieving data for WEB application as well as examples of code that can be used in real-world interactive WEB applications systems.

*Recommendation:* Completion of CIS 121 and 131 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**CIS 278 C++ and Object-Oriented Programming**

5 credit hours/ 5 periods (5 lec.)

Concepts and implementation of object-oriented programming and design using C++. Includes the language syntax of C++, applications using C++ objects to solve information systems problems, and class libraries created for reuse and inheritance.

*Prerequisite(s):* CIS 265.

Information: Completion of CIS 265 or consent of instructor is required before enrolling in this course.

Offered: Spring.

**CIS 279 Java Programming**

5 credit hours/ 5 periods (5 lec.)

Introduction to the Java programming language. Includes review of fundamentals, objects, classes, and methods, creating, resizing, and moving frames, extending classes and overriding methods, text output and input, handling events, scrollbars and colors, and mouse events. Also includes working with fonts, menus, checkboxes, lists, choices, and other components, sending data, creating and using Applets, simultaneous multi-processing, and creating and importing packages.

*Prerequisite(s):* CIS 265.

Offered: Fall.

**CIS 280 Systems Analysis and Design: Concepts and Tools**

4 credit hours/ 4 periods (4 lec.)

Concepts of systems analysis and design for all phases of the systems development life cycle. Includes problem identification, project initiation and planning, analysis, logical design, physical design, implementation and testing, and operations and maintenance. Also includes specific tools used by systems analysts, introduction and use of CASE (computer-aided software engineering) tools, and project management software.

*Prerequisite(s):* CIS 131 or 162.

Offered: Fall.

**CIS 281 Systems Analysis and Design: Applications**

3 credit hours/ 3 periods (3 lec.)

Concepts and tools of systems analysis applied to specific projects. Includes performing a project from problem initiation through to implementation using CASE tools, project management software, and appropriate software development tools.

*Prerequisite(s):* CIS 280.

Offered: Fall.

**CIS 282 Database Programming with Visual Basic**

4 credit hours/ 4 periods (4 lec.)

Programming OLE DB data compliant data sources such as SQL Server and Oracle using Visual Basic and the Active-X Data object (ADO.NET). Includes getting started, creating connections, data commands and the DataReader, the DataAdapter, transaction processing in ADO.NET, and the DataSet. Also includes the DataView, editing and updating data, using ADO.NET in Windows forms and Web forms, and using the XML designer.

*Prerequisite(s):* CIS 162.

Offered: May not be offered this year, check class schedule.

**CIS 285 Oracle Programming with PL/SQL**

4 credit hours/ 4 periods (4 lec.)

Introduction to Oracle programming with Procedure Language/ Structured Query Language (PL/SQL). Includes data handling, processing, procedures, functions, unit dependencies, triggers, dynamic SQL and object technology, and performance tuning. Error management and exception handling are also presented.

*Prerequisite(s):* CIS 162, 174, and 182.*Corequisite(s):* CIS 255

Offered: May not be offered this year, check class schedule.

**CIS 286 Advanced Java Topics**

5 credit hours/ 5 periods (5 lec.)

Advanced topics in the Java programming language. Includes professional Java programming concepts, networking, interface with other programming languages, packaging programs and data into files, thread creation and execution, and specialized topics.

Prerequisite(s): CIS 279.

Information: Prerequisite maybe waived with equivalent knowledge of Java.

Offered: May not be offered this year, check class schedule.

**CIS 287 Data Processing Projects II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Analysis and solution of a computer problem related to business. Includes choice of a computer language, structured programming techniques, setting priorities, and development and testing of procedures. Also includes methods of documentation, enhancement projection, and making a formal presentation.

Information: Consent of instructor is required before enrolling in this course.

Offered: Spring.

**CIS 299 Introduction to Co-op: Computer Information Systems**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

Corequisite(s): CIS 299WK

Offered: Fall, Spring.

**CIS 299WK Co-op Work: Computer Information Systems**

1-8 credit hours/ 5-40 periods (5-40 lab)

Co-op Work: See Cooperative Education section for description.

Corequisite(s): CIS 299

Offered: Fall, Spring.

**COMPUTER SOFTWARE APPLICATIONS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CSA 089 Beginning Computer Skills**

1 credit hour/ 1.5 periods (.5 lec., 1 lab)

Beginning approach to operating a computer. Includes basic computer skills, computer terminology, Windows use, handling files, word processing (Word Pad).

Offered: Fall, Spring.

**CSA 100 Computer Literacy**

1 credit hour/ 1.5 periods (.5 lec., 1 lab)

Overview of computer applications and functions. Includes historical significance of the computer, components of a computer system, spreadsheet, database, and word processing use within a workplace. Also includes computer networks for communication and information.

Recommendation: Completion of CSA 089 or basic computer and keyboard skills, completion of REA 091 or satisfactory score on the reading assessment test before enrolling in this course.

Information: CSA 100 meets occupational general education computer and information literacy requirements and is a one credit version of CSA 101.

Offered: Fall, Spring, Summer.

**CSA 101 Computer Fundamentals**

3 credit hours/ 4 periods (2 lec., 2 lab)

Overview of computer applications and functions. Includes historical significance of the computer, components of a computer system, spreadsheet, database, and word processing use within a workplace. Also includes advanced office software, office networking, and computer networks for communication and information.

Recommendation: Completion of CSA 089 or basic computer and keyboard skills, completion of REA 091 or satisfactory score on the reading assessment test before enrolling in this course.

Information: CSA 101 meets occupational general education computer and information literacy requirements and is a three credit version of CSA 100.

Offered: Fall, Spring, Summer.

**CSA 107 Microcomputer Software/Hardware Topics**

3 credit hours/ 4 periods (2 lec., 2 lab)

Overview of microcomputer operating procedures. Includes software, hardware, and communication networks.

Recommendation: Completion of CSA 101 and 182 before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 108 Software Skills Update**

3 credit hours/ 4 periods (2 lec., 2 lab)

Techniques and procedures using current equipment and software. Includes file creation, data manipulation, calculations, editing, and printing.

Information: May be taken up to a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**CSA 110 Spreadsheets: Microsoft Excel**

3 credit hours/ 4 periods (2 lec., 2 lab)

Fundamentals of spreadsheet applications using Microsoft Excel. Includes spreadsheet concepts, formulas and functions, formatting worksheets and cells, working with charts and graphics, Excel Lists, managing multiple worksheets and workbooks, collaborating on a workbook and Web page, developing an Excel application, data tables and Scenario management, using Solver, importing data, and advanced functions and filtering.

Recommendation: Completion of MAT 086 or required score on the Mathematics assessment test, completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 110A Spreadsheets: Microsoft Excel Module A**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Spreadsheets applications using Microsoft Excel at the beginning level. Includes spreadsheet concepts, formulas and functions, formatting worksheets and cells, and working with charts and graphics.

Recommendation: Completion of MAT 086 or required score on the Mathematics assessment test, completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Information: CSA 110A, 110B, and 110C together constitute CSA 110.

Offered: Fall, Spring, Summer.

**CSA 110B Spreadsheets: Microsoft Excel Module B**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Spreadsheet applications using Microsoft Excel at the intermediate level. Includes Excel Lists, managing multiple worksheets and workbooks, collaborating on a workbook and Web page, and developing an Excel application.

Prerequisite(s): CSA 110A.

Information: CSA 110A, 110B, and 110C together constitute CSA 110.

Offered: Fall, Spring, Summer.

**CSA 110C Spreadsheets: Microsoft Excel Module C**

1 credit hour/ 1.32 periods (.66 lec., .66 lab)

Spreadsheet applications using Microsoft Excel at the advanced level. Includes data tables and Scenario management, using Solver, importing data, and advanced functions and filtering.

Prerequisite(s): CSA 110B.

Information: CSA 110A, 110B, and 110C together constitute CSA 110.

Offered: Fall, Spring, Summer.

**CSA 120 Word Processing: Word**

3 credit hours/ 4 periods (2 lec., 2 lab)

Word processing concepts using Microsoft Word. Includes creating and editing documents, using character and paragraph formatting, tables, styles, templates, macros, merge, multiple-columnar formats, internet basics, creating and using advanced styles, templates, forms, working with graphics in documents, working with large documents, determining document layout, and sharing documents.

Recommendation: Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test, completion of OAP 111A or keyboarding by touching at 30 wpm before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 120A Word Processing: Word Module A**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Microsoft Word at an introductory level. Includes getting started with Word for Windows, editing a document, enhancing text, formatting a document, and multipage documents.

Recommendation: Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test, completion of OAP 111A or keyboarding by touching at 30 wpm before enrolling in this course.

Information: CSA 120A, 120B, and 120C together constitute CSA 120.

Offered: Fall, Spring, Summer.

**CSA 120B Word Processing: Word Module B**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Microsoft Word at an intermediate level. Includes file management, advanced page setup, tables, Auto Text, merging, and templates and wizards.

Prerequisite(s): CSA 120A.

Information: CSA 120A, 120B, and 120C together constitute CSA 120.

Offered: Fall, Spring, Summer.

**CSA 120C Word Processing: Word Module C**

1 credit hour/ 1.32 periods (.66 lec., .66 lab)

Microsoft Word at an advanced level. Includes macros, templates, styles, table of content, graphics, and customizing Word.

Prerequisite(s): CSA 120B.

Information: CSA 120A, 120B, and 120C together constitute CSA 120.

Offered: Fall, Spring, Summer.

**CSA 130 PowerPoint**

3 credit hours/ 4 periods (2 lec., 2 lab)

Fundamentals of Microsoft PowerPoint presentation software. Includes introduction to PowerPoint, beginning a presentation, templates and wizards, color scheme, drawing tools, clip art, presentation in outline view, toolbars, organization charts, graphs, advanced text and graphics, templates and the slide master, slide shows, output and presentation options, animation, video, sound, creating action buttons, connecting to the Internet, and running a slide show.

Recommendation: Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 130A PowerPoint: Module A**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Fundamentals of Microsoft PowerPoint presentation software at the beginning level. Includes introduction to PowerPoint, beginning presentation, templates and wizards, color scheme, and drawing tools. Recommendations: Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Information: CSA 130A, 130B, and 130C together constitute CSA 130.

Offered: Fall, Spring, Summer.

**CSA 130B PowerPoint: Module B**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Fundamentals of Microsoft PowerPoint presentation software at the intermediate level. Includes clipart, presentation in outline view, toolbars, and organization charts.

Prerequisite(s): CSA 130A.

Information: CSA 130A, 130B, and 130C together constitute CSA 130.

Offered: Fall, Spring, Summer.

**CSA 130C PowerPoint: Module C**

1 credit hour/ 1.32 periods (.66 lec., .66 lab)

Fundamentals of Microsoft PowerPoint at the advanced level. Includes graphics, advanced text and graphics, templates and the slide master, slide shows, output and presentation options, animated, video, sound, creating action buttons, connecting to the Internet, and running a slide show.

Prerequisite(s): CSA 130B.

Information: CSA 130A, 130B, and 130C together constitute CSA 130.

Offered: Fall, Spring, Summer.

**CSA 141 Integrated Office Suite**

4 credit hours/ 5 periods (3 lec., 2 lab)

Practical applications and concepts using integrated Microsoft Office Software. Includes concepts, functions and features of Word, Excel, Access, PowerPoint, and integrated case studies.

Prerequisite(s): CSA 101.

Offered: Fall, Spring, Summer.

**CSA 145 Microsoft Project Software**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to the use of Microsoft Project software. Includes getting around in Project, Project schedule, communicating with Project, assigning resources and costs, tracking and closing, sharing Project and Excel, and advanced features.

Prerequisite(s): CSA 101.

Offered: Fall, Spring, Summer.

**CSA 152 Internet Browser: Microsoft Explorer**

2 credit hours/ 3 periods (1 lec., 2 lab)

Fundamentals of Microsoft Internet Explorer. Includes introduction to the Internet and the World Wide Web, browsing the Web, customizing the browser, printing and saving Web pages, searching the Web, information resources on the Web, communication and file transferring using the internet, security features, enhancing internet explorer, and ethics and intellectual properties.

Recommendation: Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 152A Internet Browser: Microsoft Explorer Module A**

1 credit hour/ 1.5 periods (.5 lec., 1 lab)

Fundamentals of Microsoft Internet Explorer at the beginning levels. Includes introduction to the Internet and the World Wide Web, browsing the Web, customizing the browser, printing and saving Web pages, and searching the Web.

Recommendation: Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Information: CSA 152A and 152B together constitute CSA 152.

Offered: Fall, Spring, Summer.

**CSA 152B Internet Browser: Microsoft Explorer Module B**

1 credit hour/ 1.5- periods (.5 lec., 1 lab)

Fundamentals of Microsoft Internet Explorer at the intermediate level. Includes locating information resources on the Web, communication and file transferring using the Internet, security features, and enhancing Internet Explorer.

Prerequisite(s): CSA 152A.

Information: CSA 152A and 152B together constitute CSA 152.

Offered: Fall, Spring, Summer.

**CSA 155 Microsoft FrontPage**

3 credit hours/ 4 periods (2 lec., 2 lab)

Web site concepts and design using Microsoft Front Page. Includes web site development, graphics and hyperlinks, lists, anchors, and web site views, shared borders and themes, tables and frames, web site publishing, and web server utilization.

Prerequisite(s): CSA 101.

Recommendation: Completion of CSA 152 or skills using the Internet and the World Wide Web before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 165 Dreamweaver for Microsoft Windows I**

3 credit hours/ 4 periods (2 lec., 2 lab)

Web site concepts in a Microsoft Windows environment using Dreamweaver. Includes commands and features, integrated file browser, text image file formats, hyperlinks, local web pages, web site functionality, page layout, tables, Dreamweaver help, get and put features, and cascading style sheets.

Recommendation: Completion of CSA 101 before enrolling in this course.

Information: Advanced computer application skill is required before enrolling in this course.

Offered: Fall, Spring.

**CSA 166 Dreamweaver for Microsoft Windows II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Advanced concepts of the Macromedia Dreamweaver Web development application. Includes rollovers and navigation bars, libraries, head elements and keyboard shortcuts, stylesheets, frames, layers, history panel, browser targeting and code tools, forms, Macromedia integration, and connections to dynamic data.

Prerequisite(s): CSA 165.Recommendation: Completion of CSA 101 before enrolling in this course.

Information: Advanced computer application skill is required before enrolling in this course.

Offered: Fall, Spring.

**CSA 167 Fireworks for Microsoft Windows**

3 credit hours/ 4 periods (2 lec., 2 lab)

Intro to Fireworks for Microsoft Windows. Includes the Fireworks environment, creating vector graphics transforming vector images and effects, bitmap images, using text, libraries, optimizing graphics for the Web, hotspot links, slicing and rollovers, vector paths, image effects, advanced rollovers/slicing, symbols, instances, and animation, history panel, and Macromedia integration.

Prerequisite(s): CSA 165.Recommendation: Completion of CSA 101 before enrolling in this course.

Information: Advanced computer skill is required before enrolling in this course.

Offered: Fall, Spring.

**CSA 168 Flash for Microsoft Windows**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to Flash as a Web development tool. Includes the Flash environment, vector vs. bitmap graphics, creating and manipulating objects, history panel, working with text, multiple layers in a movie, creating animation, Flash movie publishing, symbols and instances, organizing large projects interactivity in Flash, libraries, working with sound, using ActionScript, testing and publishing a Flash movie, and Macromedia integration.

Prerequisite(s): CSA 165.Recommendation: Completion of CSA 101 before enrolling in this course.

Information: Advanced computer application skill is required before enrolling in this course.

Offered: Fall, Spring.

**CSA 170 Database: Access**

3 credit hours/ 4 periods (2 lec., 2 lab)

Techniques for using Microsoft Access. Includes an overview of Microsoft Access, creating tables, working with tables, creating and using select queries, creating and using forms, creating and using reports, creating a report that contains totals, principles of table design and relationships, table design techniques, designing select queries, customizing form designs, working with data access pages, customizing reports, parameter and action queries, query joins and crosstab queries, using advanced form techniques, creating basic macros to automate forms, using macros to provide user interaction and automate tasks, using advanced report techniques, Access, and the Internet.

Recommendation: Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Offered: Fall, Spring, Summer.



**CSA 170A Database: Access Module A**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Microsoft Access at the beginning level. Includes an overview of Access, creating tables, working with tables, creating and using select queries, creating and using forms, creating and using reports, creating a report that contains totals.

*Recommendation:* Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Information: CSA 170A, 170B, and 170C together constitute CSA 170.

Offered: Fall, Spring, Summer.

**CSA 170B Database: Access Module B**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Microsoft Access at the intermediate level. Includes techniques to enhance database designs using the principles of normalization and table relationships. Also includes principles of table design, principles of table relationships, table design techniques, designing select queries, customizing form designs, working with data access pages, and customizing reports.

*Prerequisite(s):* CSA 170A.

Information: CSA 170A, 170B, and 170C together constitute CSA 170.

Offered: Fall, Spring, Summer.

**CSA 170C Database: Access Module C**

1 credit hour/ 1.32 periods (.66 lec., .66 lab)

Microsoft Access at the advanced level. Includes advanced techniques for using complex queries, creating more efficient forms and reports, and automating forms. Also includes parameter and action queries, query joins and crosstab queries, using advanced form techniques, creating basic macros to automate forms, using macros to provide user interaction and automate tasks, using advanced report techniques, and Access and the Internet.

*Prerequisite(s):* CSA 170B.

Information: CSA 170A, 170B, and 170C together constitute CSA 170.

Offered: Fall, Spring, Summer.

**CSA 182 Microsoft Windows: Current Version**

3 credit hours/ 4 periods (2 lec., 2 lab)

Overview of the Microsoft Windows operating system. Includes introduction to Windows, active desktop, multitasking, Windows help features, Windows Explorer, file management, Windows accessories, exchanging data between programs, print management, control panel, customizing Windows, and networking with Windows.

*Recommendation:* Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 182A Microsoft Windows: Current Version Module A**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Overview of the Microsoft Windows operating system. Includes introduction to Windows, active desktop, multitasking, and Windows help features.

Information: CSA 182A, 182B, and 182C together constitute CSA 182.

*Recommendation:* Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling.

Offered: Fall, Spring, Summer.

**CSA 182B Microsoft Windows: Current Version Module B**

1 credit hour/ 1.34 periods (.67 lec., .67 lab)

Continuation of CSA 182A. Includes Windows Explorer, file management, Windows accessories, and exchanging data between programs.

*Prerequisite(s):* CSA 182A.

Information: CSA 182A, 182B, and 182C together constitute CSA 182.

Offered: Fall, Spring, Summer.

**CSA 182C Microsoft Windows: Current Version Module C**

1 credit hour/ 1.32 periods (.66 lec., .66 lab)

Continuation of CSA 182B. Includes print management, control panel, customizing Windows, and networking with Windows.

*Prerequisite(s):* CSA 182B.

Information: CSA 182A, 182B, and 182C together constitute CSA 182.

Offered: Fall, Spring, Summer.

**CSA 207 Microsoft Publisher**

3 credit hours/ 4 periods (2 lec., 2 lab)

Desktop publishing for administrative support personnel. Includes a variety of desktop publishing software, terms and concepts, text, graphics, page format, other features, and basic design.

*Prerequisite(s):* CSA 120 or 120A and 120B.

Offered: Fall, Spring.

**CSA 210 Microsoft Excel Specialist Certification Preparation**

2 credit hours/ 3 periods (1 lec., 2 lab)

Basic and intermediate functions of Microsoft Excel. Includes cells and cell content, data analysis, formula calculations, graphics, workgroup collaborations, format and print worksheets, and managing and modifying workbooks. Also includes preparation for the Microsoft Office Specialist (MOS) Excel Certification.

*Recommendation:* Completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Reading assessment test before enrolling in this course.

Information: If the student has computer literacy equal to CSA 100, instructor permission may be obtained.

Offered: Fall, Spring, Summer.

**CSA 211 Integrating Microsoft Excel Projects**

3 credit hours/ 4 periods (2 lec., 2 lab)

Problem solving and decision making with Microsoft Excel. Includes problem solving using fundamental Excel skills and tools and statistical analysis tools, determining effective data display with charts, applying logic in decision making, retrieving data for computation, analysis, and reference, evaluating the financial impact of loans and investments, sharing business data using the Web, exchanging data across platforms and programs, and using XML with Microsoft Excel and Access.

*Prerequisite(s):* CSA 210.

Information: Prerequisite maybe waived with Excel experience. See a CSA faculty or advisor or counselor. Specialist certification.

Offered: May not be offered this year, check class schedule.

**CSA 220 Microsoft Word Specialist Certification Preparation**

2 credit hours/ 3 periods (1 lec., 2 lab)

Beginning and intermediate functions and features of Microsoft Word. Includes creating content, organizing content, formatting content, document collaboration, and formatting and managing documents. Also includes preparation for the Microsoft Office Specialist (MOS) Word certification.

*Prerequisite(s):* CSA 100.

Information: Prerequisite maybe waived with computer literacy equal to CSA 100.

Offered: Fall, Spring.

**CSA 221 Integrating Microsoft Word Projects**

3 credit hours/ 4 periods (2 lec., 2 lab)

Production of integrated business communications using Microsoft Word. Includes conducting business research on the Web, managing communications with Microsoft Word, creating an online form, delivering presentations with PowerPoint, developing macros, integrating business communications in Word, integrating data between programs, and converting documents for Web posting.

*Prerequisite(s):* CSA 120 or 220.

Information: Prerequisite maybe waived with MOS Word Specialist certification.

Offered: Fall, Spring.

**CSA 230 Microsoft PowerPoint Specialist Certification Preparation**

2 credit hours/ 3 periods (1 lec., 2 lab)

Basic and intermediate functions and features of Microsoft PowerPoint. Includes creating new presentations, text-based content, inserting content, formatting content and slides, working with masters, presentation collaborations, managing and delivering presentations, and saving, publishing, and printing presentations. Includes preparation for the Microsoft Office Specialist (MOS) PowerPoint certification.

*Prerequisite(s):* CSA 130.

Information: Prerequisite maybe waived with computer literacy equal to CSA 130.

Offered: Fall, Spring.

**CSA 241 Advanced Integrated Office Projects**

4 credit hours/ 5 periods (3 lec., 2 lab)

Problem solving and decision making with Microsoft Office. Include file management, conducting business research, managing communications using Microsoft Word and delivering presentations using Microsoft PowerPoint. Problem solving and decision making with spreadsheets using Microsoft Excel, solving business problems with databases using Microsoft Access and integrating business applications.

*Prerequisite(s):* CSA 141.

Offered: Fall, Spring.

**CSA 265 Advanced Microsoft Access**

3 credit hours/ 4 periods (2 lec., 2 lab)

Advanced database concepts, to include how to import and retrieve data, creation of complex queries and using the SQL view; creation of complex forms, reports, and user interface; use of the VBA interface, connecting to the Web, and security within a Microsoft Access database.

*Prerequisite(s):* CSA 170.

Information: Advanced computer application skills necessary.

Offered: Spring.

**CSA 266 Dreamweaver for Microsoft Windows III**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to advanced concepts of the Macromedia Dreamweaver for Databases. Includes database design review, recordsets, retrieving data, making data and images dynamic, live data, HTML, updating forms, templates, security, and multiple-page applications.

*Prerequisite(s):* CSA 166.

*Recommendation:* Completion of CSA 101 and 170 before enrolling in this course.

Offered: Spring.



**CSA 267 Advanced Flash for Microsoft Windows**

3 credit hours/ 4 periods (2 lec., 2 lab)

Advanced Flash techniques as a web development tool. Includes advanced sound techniques, graphics, embedding video into Flash, interacting with movie clips, building interactions within timelines, integrating Flash content with web pages, using the ActionScript interface, using the Flash player and projector, sharing and loading assets, importing and exporting data, and managing and troubleshooting Flash movies.

Prerequisite(s): CSA 101, 165, 168.

Offered: Summer.

**CSA 268 Microsoft Access Database Design**

3 credit hours/ 4 periods (2 lec., 2 lab)

Database concepts and development relating to Microsoft Access. Includes database design, data models, relational database model, Entity Relationship (ER) model, database normalization, using queries in Access, and database performance tuning. prerequisite(s): CSA 170.

Offered: Spring.

**CSA 270 Microsoft Access Specialist Projects**

3 credit hours/ 4 periods (2 lec., 2 lab)

Production of database using Microsoft Access with design process. Includes planning and designing the database, database table, data for effective decision making, data collection, effective reports, automating database processes, enhancing user interactions using Visual Basic for applications, and integrating the database with a website.

Prerequisite(s): CSA 170.

Offered: Fall, Spring.

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**COOPERATIVE EDUCATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CED 199 Introduction to Co-Op: Liberal Arts**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education for first-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience.

Corequisite(s): CED 199WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**CED 199WK Co-op Work: Liberal Arts**

1-8 credit hours/ 5-40 periods (5-40 lab)

A supervised cooperative work program for students in related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

Corequisite(s): CED 199

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

**CED 299 Introduction to Co-op: Liberal Arts**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Emphasis on attitude adjustment.

Corequisite(s): CED 299WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**CED 299WK Co-op Work: Liberal Arts**

1-8 credit hours/ 5-40 periods (5-40 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisor. Variable credit is available by special arrangement.

Corequisite(s): CED 299

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

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**CRIME SCENE MANAGEMENT**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CSM 100 Introduction to Photo Equipment & Procedures for Crime Scene Investigations**

1 credit hour/ 1 period (1 lec.)

Focuses on developing skills in photographing a crime scene and processing black and white films/paper. Includes tools and equipment, taking basic crime scene photographs, and chemical processes used in processing crime scene photographs. Offered: Fall, Spring.

**CSM 101 Criminalistics**

2 credit hours/ 2 periods (2 lec.)

Focuses on awareness and identification of both physical and biological evidence associated with crime scenes, with an emphasis on scientific analysis. Includes discussion on fingerprints, ballistics, DNA and blood evidence, hair and fibers, tool marks, bite marks, glass fragments, handwriting analysis, the scientific technology behind the investigative process, safety issues, and the future of criminalistics. Offered: Fall, Spring.

**CSM 102 Crime Scene Photography**

1 credit hour/ 1 period (1 lec.)

Focuses on the specific skills needed to photograph various types of crime scene situations. Includes 1:1 photography, trace evidence, proper use of photographic equipment for crime scene investigations, and photographing post mortem injuries.

Information: CSM 100 and CSM 102 can also be taken concurrently.

Offered: Fall, Spring.

**CSM 103 Latent Processing**

.5 credit hours/ .5 periods (.5 lec.)

Focuses on the techniques involved in developing latent fingerprints. Includes physical characteristics and types of fingerprints, principles of fingerprinting, fingerprint collection, fingerprint surfaces, and the photography of latent prints. Offered: Fall, Spring.

**CSM 104 Fingerprint Identification**

3 credit hours/ 3 periods (3 lec.)

Provides in-depth study and analysis of fingerprints and their comparative value. Includes fingerprinting history, basic pattern types, identification standards and protocols, fingerprint pattern interpretations, and classification systems.

Offered: Fall, Spring.

**CSM 105 Blood Pattern Documentation**

.5 credit hours/ .5 periods (.5 lec.)

Focuses on awareness of evidentiary value associated with bloodstain interpretation and the importance of proper photographic documentation. Includes discussion on stain and flow patterns, surface considerations, photographing blood patterns, health hazards, and blood detection presumptive tests.

Offered: Fall, Spring.

**CSM 106 Ballistics**

.5 credit hours/ .5 periods (.5 lec.)

Focuses on firearms, safety and basic evidence collection in crime scene management. Includes firearms and ammunition recognition and identification, ammunition components and homemade bombs. Also includes the scientific technology involved in comparative analysis.

Offered: Fall, Spring.

**CSM 107 Courtroom Testimony and Report Writing**

.5 credit hours/ .5 periods (.5 lec.)

Focuses on general court practices expected of a crime scene investigator. Includes extensive use of mock/moot trial methods to prepare students for court cases. Also includes developing complete and accurate case reports, tools used by defense attorneys, cross examination, and pre-trial interviews.

Information: This course emphasizes writing skills.

Offered: Fall, Spring.

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**CULINARY ARTS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**CUL 101 Principles of Restaurant Operations**

3 credit hours/ 3 periods (3 lec.)

Fundamentals of operating and managing small and large restaurants. Includes concept development, menu development, budgeting and controlling costs, financing and leasing, legal and tax matters, defining jobs and organizing the restaurant, staffing the restaurant, employment training and development, equipment in the kitchen, restaurant marketing, marketing plan, sales and promotion, food purchasing, and customer relations.

Offered: Spring, Summer.

**CUL 110 Food Service Nutrition**

2 credit hours/ 2 periods (2 lec.)

Basic nutrition concepts with an emphasis on the nutritional concerns of restaurants and other types of food service operations. Includes health and nutrition, evaluation and use of popular and commercial nutrition information, carbohydrates, lipids, proteins, vitamins, minerals, water, energy metabolism/balance, and nutrition principles and the life cycle.

Offered: Spring, Summer.

**CUL 115 Food Service Sanitation and Safety**

3 credit hours/ 3 periods (3 lec.)

Theory and practice of food service safety and sanitation. Includes creating a safe food service environment, food-borne illnesses, Hazard Analysis Critical Control Points, sanitation in the purchasing, receiving and storage of food, sanitation in the preparation and service of food, maintaining sanitary facilities and equipment, safety and accident prevention, and legal requirements for food service safety and sanitation. Reviews legal elements of food service sanitation based on requirements and recommendations of Pima County Health Department.

Offered: Fall, Spring.

**CUL 120 Stewarding**

2 credit hours/ 2 periods (2 lec.)

Introduction to stewarding as kitchen support service. Includes cleaning and sanitizing a kitchen, functions of a steward, receiving, food rotation, and ordering systems.

*Corequisite(s)*

Offered: May not be offered this year, check class schedule.

**CUL 126 Applied Mathematics for Food**

1 credit hour/ 1 period (1 lec.)

Fundamentals of cost controls. Includes an introduction to profit and loss, balance sheet and net worth statements, measurement and conversions, recipe conversions, unit and recipe costing, yield tests, inventory and food cost percentages, controlling food costs, and menu pricing.

Offered: May not be offered this year, check class schedule.

**CUL 130 Hot Foods I**

3 credit hours/ 3 periods (3 lec.)

Introduction to all facets of hot foods. Includes classical stocks, sauces, soups, liaisons: roux and starches, cooking techniques, preparation of vegetables, and butchering.

*Corequisite(s):* CUL 150, CUL 160

Offered: Fall, Spring.

**CUL 140 Culinary Principles**

3 credit hours/ 3 periods (3 lec.)

Introduction to the background of culinary work. Includes professionalism, job responsibilities, tools and equipment, knives and knife skills, stocks, sauces, principles of cooking, food service vocabulary, then menu, food tasting, herbs and spices, chocolate, and vegetables.

Offered: Fall, Spring.

**CUL 150 Garde Manger I**

3 credit hours/ 3 periods (3 lec.)

Introduction to the fundamentals of Garde Manger. Includes care of equipment, dressings: emulsified/non-emulsified, knife skills, basic sandwiches, herbs and spices, salad greens, and commercial cooking techniques.

*Corequisite(s):* CUL 130, CUL 160

Offered: Fall, Spring.

**CUL 160 Bakery and Pastry Production I**

3 credit hours/ 3 periods (3 lec.)

Theory and practice of operating a bakery or pastry shop in a hotel or restaurant kitchen. Includes planning, ordering and scheduling for bakeshop production, safety and sanitation, bakery and pastry vocabulary, ingredients, yeast breads, quick breads, quick breads, creams and custards, dough, cakes, filling, and frostings, cookies and brownies, and elementary plating, decorating and garnishing techniques.

*Corequisite(s):* CUL 130, CUL 150

Offered: Fall, Spring.

**CUL 161 Cake Decorating and Candy Making**

3 credit hours/ 4 periods (2 lec., 2 lab)

Basic principles and methods of cake decorating and candy making. Includes history of cakes, selection of ingredients, cooking procedures, cake assembly, and presentation. Also includes techniques for creating wedding cakes and holiday delectables.

Offered: Fall, Spring, Summer.

**CUL 170 Dining Room Operations**

2 credit hours/ 2 periods (2 lec.)

Theory and practice of operating a casual dining room preparation and guest service, proper etiquette for service and clearing, wine and beverage sales and service, salesmanship, and serving the public.

Offered: May not be offered this year, check class schedule.

**CUL 180 Food in History**

3 credit hours/ 3 periods (3 lec.)

History of foodstuffs, the story of cuisine, and the social history of eating. Includes collecting, gathering and hunting foodstuffs, stock-breeding and farming, sacramental foods, the economy of food markets, the era of merchants, Columbus, Cortez and the new world food discoveries, and professional food preparation.

Offered: Fall, Spring.

**CUL 185 Catering Operations I**

2 credit hours/ 2 periods (2 lec.)

Theory and practice of planning and executing catering functions. Includes booking and planning, banquet room set-up and staffing, banquet service, guest payment and follow up, and specialized functions.

Offered: Spring, Summer.

**CUL 199 Introduction to Co-op: Culinary Arts**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

*Corequisite(s):* CUL 199WK

Offered: May not be offered this year, check class schedule.

**CUL 199WK Co-op Work: Culinary Arts**

1-3 credit hours/ 5-15 periods (5-15 lab)

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

*Corequisite(s):* CUL 199

Information: May be taken three times for a maximum of nine credit hours.

Offered: May not be offered this year, check class schedule.

**CUL 210 Menu Planning**

2 credit hours/ 2 periods (2 lec.)

Principles and techniques of menu planning and restaurant design for food service operations. Includes designing a facility, designing a kitchen, determining equipment needs, developing a cost effective menu, ambiance and food, and inventory control procedures.

Offered: May not be offered this year, check class schedule.

**CUL 230 Hot Foods II**

3 credit hours/ 3 periods (3 lec.)

Hot food preparation and service in a contemporary kitchen. Includes contemporary sauce making, vegetables, grains, and starches, natural liaisons, cooking techniques, food plating, and sanitation procedures and techniques.

*Corequisite(s):* CUL 250, CUL 260

Offered: Spring, Summer.

**CUL 250 Garde Manger II**

3 credit hours/ 3 periods (3 lec.)

Refinement of skills required in Garde Manger Department. Includes charcuterie, cold buffets, salad greens, salad dressings, garnish, and hygiene and sanitation standards.

*Prerequisite(s):* CUL 150.*Corequisite(s):* CUL 230, CUL 260

Offered: Spring, Summer.

**CUL 260 Bakery and Pastry Production II**

3 credit hours/ 3 periods (3 lec.)

Advanced theory and practice of operating a bakery of pastry shop in a hotel or restaurant kitchen. Includes planning, ordering, and scheduling for bakeshop production, safety and sanitation, bakery and pastry vocabulary, advanced yeast breads, classic French pastries, ice cream and frozen desserts, assembling pastries, pastry garnishes, and complex plated desserts.

*Prerequisite(s):* CUL 160.*Corequisite(s):* CUL 230, CUL 250

Offered: Fall, Spring.

**CUL 261 Advanced Cake Decorating and Candy Making**

3 credit hours/ 4 periods (2 lec., 2 lab)

Advanced principles and methods of cake decorating and candy making. Includes flower design, gum paste, airbrush, photo transfer, fondant, wine and chocolate artistry. Also includes advanced techniques for creating cakes for wedding and special occasions.

*Prerequisite(s):* CUL 161.

Offered: Fall, Spring, Summer.

**CUL 270 Dining Room Operations II**

2 credit hours/ 2 periods (2 lec.)

Theory and practice of operating a formal dining room. Includes dining room preparation and guest service, proper etiquette for service and clearing, wine and beverage sales and service, salesmanship, customer relations, banquets and buffets, tableside food preparation, and maitre d'hotel responsibilities.

*Prerequisite(s):* CUL 170.

Offered: May not be offered this year, check class schedule.

## DANCE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### DNC 107 Dance Conditioning

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to the concepts of dance as a strengthening, stretching, and cardiovascular activity and the awareness of alignment techniques through specific movement experiences and images. Includes class protocol, warm-up, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Offered: Fall, Spring, Summer.

### DNC 116 Dance Improvisation

2 credit hours/ 3 periods (1 lec., 2 lab)

Exploration of spontaneous dance movement based on selected criteria or structures. Includes principles of improvisation, spatial awareness, basic elements of movement, vocabulary, creative decision making, and introduction of choreographic devices.

Information: Completion of two or more of the following courses or consent of instructor before enrolling in this course: DNC 150, 166 or 219.

Offered: Spring.

### DNC 130 Tap Dance I

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to tap dancing. Includes class protocol, warm-up, standing and center floor work, locomotor work, elements and developing the craft.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall.

### DNC 131 Tap Dance II

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 130. Includes tap dance technique at an intermediate level, class protocol, warm-up, standing and center floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 130.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall.

### DNC 132 Tap Dance III

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 131. Includes tap dance technique at an advanced level, class protocol, warm-up, standing and center floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 131.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Spring.

### DNC 150 Ballet I

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to the theory and practice of ballet at the beginning level. Includes terminology, barre, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

### DNC 151 Ballet II

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 150. Includes ballet techniques at the intermediate level, terminology, barre, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 150.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall.

### DNC 152 Ballet III

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 151. Includes ballet technique at the advanced level, ballet terminology, barre, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 151.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Spring.

### DNC 166 Modern Dance I

2 credit hours/ 3 periods (1 lec., 2 lab)

Development of basic skills for dance. Includes modern dance technique at a beginning level, class protocol, warm-up, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

### DNC 167 Modern Dance II

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 166. Includes development of intermediate skills for modern dance, class protocol, warm-up, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 166.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall.

### DNC 168 Modern Dance III

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 167. Includes development of advanced skills for modern dance, class protocol, warm-up, floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 167.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Spring.

### DNC 170 Danza Folkloricos Mexicanos

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to the folklorico dance of Mexico. Includes class protocol, warm-up, Mexican folk dance, the Zapateado technique, basic regional dance of Mexico, dance steps of different regions of Mexico, and developing the craft.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

### DNC 180 Choreography

2 credit hours/ 2 periods (2 lec.)

The study of basic dance composition and construction of a phrase, structure, and form. Includes exploring the basic elements of dance, building a movement phrase, choreographic elements, constructing a dance, and analyzing the effectiveness of choreography.

Prerequisite(s): DNC 116.

Information: Prerequisites may be waived with consent of instructor.

Offered: Fall.

### DNC 200 Dance Appreciation and History

3 credit hours/ 3 periods (3 lec.)

Introduction to the art of dance from its beginning as a religious form to its current place on Broadway and television. Includes concepts in dance appreciation, themes and purposes of dance, analyzing dance works, styles of dance, roles of and major historical periods of world dance, and movement sessions.

Offered: Fall.

### DNC 215 Teaching Methods of Dance I

3 credit hours/ 3 periods (3 lec.)

Instruction on how to teach dance to those from preschool age through 8th grade. Includes elements of dance, developmental stages, classroom management, lesson structure, use of creative movement in the school curriculum, and delivery of lesson plans. Also includes incorporating federal and Arizona standards for dance education academic curriculum for this age group.

Information: Completion of two of the following courses is required before enrolling in this class: DNC 150, 151, 152, 166, 167, 168, 219, 220, 221.

Offered: Fall.

### DNC 216 Teaching Methods for Dance II

3 credit hours/ 3 periods (3 lec.)

Continuation of DNC 215. Instruction on how to teach dance to those from 9th grade through seniors. Includes elements of dance, developmental stages, classroom management, lesson structure, use of creative movement in the school curriculum delivery of lesson plans, working with special populations, and transfer of knowledge to other dance forms.

Prerequisite(s): DNC 215.

Offered: Spring.

### DNC 219 Jazz Dance I

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction and development of movement skills necessary to prepare the body as an instrument of expression in jazz dance styles. Includes class protocol, warm-up, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall.

### DNC 220 Jazz Dance II

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 219. Progressive development of alignment for intermediate level jazz dance. Includes class protocol, warm-up, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 219.

Offered: Fall.

### DNC 221 Jazz Dance III

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of DNC 220. Progressive development of alignment for advanced



level jazz dance. Includes class protocol, warm-up, floor work, standing and center floor work, locomotor work, elements, and developing the craft.

Prerequisite(s): DNC 220.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Spring.

### **DNC 230 Rhythms for Dance**

2 credit hours/ 2 periods (2 lec.)

Exploration of the elements of music and music structures and their relationship to dance. Includes musical composition forms, rhythmic dance accompaniment, musical instruments, musical scores, and creation of dance accompaniment.

Prerequisite(s): DNC 150, 166, or 219.

Offered: Spring.

### **DNC 269 Dance Production and Performance**

2 credit hours/ 4 periods (4 lab)

Practical experience in all aspects of taking a dance piece from basic choreography and creating a professional performance. Includes rehearsal/performance process, responsibilities of a performer and a choreographer, performance skills, choreographic review, costuming, make-up, sets, props, publicity, and analysis of the concert.

Information: May be taken four times for a maximum of eight credit hours. Consent of instructor is required before enrolling in this class.

Offered: Fall, Spring.

### **DNC 280 Business for Dance Careers**

3 credit hours/ 3 periods (3 lec.)

Introduction to the various careers available in dance and the appropriate business skills. Includes careers in dance, grant and proposal writing, agency interface, business skills, publicity, and creating a dance business on paper.

Offered: Spring.

### **DNC 285 Technology for Dance**

2 credit hours/ 2 periods (2 lec.)

Survey of the expanding field of technology as it pertains to the study and performance of dance. Includes overview of technology in dance, dance technologist roles and responsibilities, application of technology, dance computer programs, videotaping and documenting dance, and creating a dance performance art piece.

Offered: Spring.

### **DNC 296 Independent Studies in Dance**

1-3 credit hours/ 2-6 periods (2-6 lab)

Composition and/or in-depth independent study in an area of the student's choice with approval by the supervising instructor.

Information: May be taken four times for a maximum of twelve credit hours. Consent of instructor is required before enrolling in this class.

Offered: May not be offered this year, check class schedule.

## **DENTAL ASSISTING EDUCATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **DAE 159 Introduction to Health Care for Dental Assisting**

2 credit hours/ 2 periods (2 lec.)

Basic skills essential to working successfully with patients and co-workers in dental offices and clinics as a member of the dental health team. Includes study skills and psychology, vital signs, communication in the dental environment, job entry skills, and research and oral speech projects.

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### **DAE 160 Orientation to Dental Care**

1 credit hour/ 1 period (1 lec.)

Overview of the field of dental care. Includes the dental health team, ethics, jurisprudence and professional organizations.

Corequisite(s): DAE 161, DAE 162, DAE 163, DAE 164

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### **DAE 161 Biomedical Dental Science**

3 credit hours/ 3 periods (3 lec.)

The biosciences as they relate to the oral cavity. Includes anatomy, physiology, histology, microbiology, infection control, oral pathology, and nutrition as each affects total dental health.

Corequisite(s): DAE 160, DAE 162, DAE 163, DAE 164

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### **DAE 162 Dental Assisting I**

2 credit hours/ 2 periods (2 lec.)

Principles and techniques of dental assisting. Includes morphology of human dentition and dental instruments and their use in various operative procedures.

Corequisite(s): DAE 160, DAE 161, DAE 162LB, DAE 163

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### **DAE 162LB Dental Assisting I Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DAE 162.

Corequisite(s): DAE 162

Offered: Fall.

### **DAE 163 Oral Radiography**

2 credit hours/ 2 periods (2 lec.)

Use of dental roentgenography as a diagnostic aid. Includes safety factors when exposing radiographs; training in exposing, processing, mounting, labeling and filing radiographs; and training in recognizing radiographs that are acceptable for diagnosis.

Corequisite(s): DAE 160, DAE 161, DAE 162, DAE 163LB

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### **DAE 163LC Oral Radiography Clinical Lab**

1 credit hour/ 3 periods (3 lab)

This is the Clinical Lab portion of DAE 163.

Corequisite(s): DAE 163

Offered: Fall.

### **DAE 164 Dental Materials**

2 credit hours/ 2 periods (2 lec.)

Chemical and physical properties of dental materials used in dental practice. Includes materials used in preventive, restorative, and prosthetic procedures.

Corequisite(s): DAE 160, DAE 161, DAE 162, DAE 163

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### **DAE 164LB Dental Materials Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DAE 164.

Corequisite(s): DAE 164

Offered: Fall.

### **DAE 165 Pre-Clinical Procedures**

1 credit hour/ 1 period (1 lec.)

Techniques and procedures of chairside dental assisting. Includes both general and specialty dental practices.

Corequisite(s): DAE 160, DAE 161, DAE 162, DAE 163

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### **DAE 165LB Pre-Clinical Procedures Lab**

1 credit hour/ 4 periods (4 lab)

This is the Lab portion of DAE 165.

Corequisite(s): DAE 165

Offered: Fall.

### **DAE 166 Dental Assisting II**

3 credit hours/ 3 periods (3 lec.)

Continuation of DAE 162. Includes cardiopulmonary resuscitation (CPR) for the dental professional, pharmacology, and emergency medical/dental care.

Prerequisite(s): DAE 159, 162, and 165.

Corequisite(s): DAE 167, DAE 190LC

Offered: Spring.

### **DAE 167 Dental Assisting III**

3 credit hours/ 3 periods (3 lec.)

Includes Principles and techniques of dental practice management and oral health education as applied to dental assisting.

Prerequisite(s): DAE 159, and 165.

Corequisite(s): DAE 166, DAE 190LC

Offered: Spring.

### **DAE 190LC Clinical Procedures**

6 credit hours/ 24 periods (24 lab)

Application of acquired skills in a clinical environment. Includes direct supervision of the dentist and instructor.

Prerequisite(s): DAE 161, 162, 163, 164, and 165.

Corequisite(s): DAE 166, DAE 167

Offered: Spring.



## DENTAL HYGIENE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### DHE 101 Pre-Clinical Dental Hygiene

2 credit hours/ 2 periods (2 lec.)

Introduction to the procedures used in the practice of dental hygiene at the beginning level. Includes professionalism and ethics, infection control, body mechanics/ergonomics, evaluation of patient medical and dental history, assessment data, and instrumentation. Removal of soft deposits, fluorides, clinical procedures, and diversity of patient populations. Also includes a laboratory involving practicing dental hygiene procedures on student partners.

Corequisite(s): DHE 101LC

Information: Selective admissions program course. Special permission is required.

Offered: Fall.

### DHE 101LC Pre-Clinical Dental Hygiene

2 credit hours/ 8 periods (8 lab)

This is the Clinical Lab portion of DHE 101.

Corequisite(s): DHE 101

Offered: Fall.

### DHE 104 Dental and Oral Morphology

1 credit hour/ 1 period (1 lec.)

Form and function of primary and permanent dentition. Includes oral cavity proper, form, function and physiology, identification, terminology, deciduous dentition morphology occlusion, tooth anomalies, and root morphology.

Corequisite(s): DHE 104LB

Offered: Fall.

### DHE 104LB Dental and Oral Morphology Lab

2 credit hours/ 2 periods (2 lab)

This is the Lab portion of DHE 104.

Corequisite(s): DHE 104

Offered: Fall.

### DHE 107 Oral Embryology and Histology

2 credit hours/ 2 periods (2 lec.)

The development and histology of teeth related to the intra and extra oral tissues of the head as they relate to the practice of dental hygiene. Includes terminology and formation of primary embryonic layers, histology, tooth development, enamel, dentin, and pulp. Also includes cementum, periodontal ligament, bone and alveolar process, and mucous membranes and salivary glands.

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Fall.

### DHE 116 Oral Radiography

2 credit hours/ 2 periods (2 lec.)

Principles of dental radiography as a diagnostic aid. Includes radiation production, biology, clinic experience in exposing, processing, mounting, and interpreting radiographs on mannequins and patients using a variety of radiographic techniques.

Corequisite(s): DHE 116LC

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Fall.

### DHE 116LC Oral Radiography

1 credit hour/ 3 periods (3 lab)

This is the Clinical Lab portion of DHE 116.

Corequisite(s): DHE 116

Offered: Fall.

### DHE 119 Periodontology

1 credit hour/ 1 period (1 lec.)

Survey of periodontology comprised of the etiology, diagnosis and prognosis of periodontal disease. Includes an introduction and historical background, preventative dentistry modalities, radiographic interpretation of periodontal disease, and treatment planning for the dental hygienist.

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Spring.

### DHE 120 Oral Pathology

2 credit hours/ 2 periods (2 lec.)

Oral Pathology is the study of human disease as found within all of the tissues represented in the area of the oral cavity. Includes basic sciences, clinical presentations, disease manifestations, diagnostic methods and treatment modalities of pathology of the oral region.

Information: Selective admissions course. Special permission is required before enrolling.

Offered: Spring.

### DHE 121 Preventive Dentistry and Nutrition

3 credit hours/ 3 periods (3 lec.)

Introduction to dental disease and the promotion of dental health. Includes oral hygiene instruction, antimicrobials, fluorides, nutrition, and diet and their role in dental disease and health.

Information: This is a selective admissions program course. Special permission required before enrolling in this course.

Offered: Fall.

### DHE 190 Clinical Dental Hygiene I

2 credit hours/ 2 periods (2 lec.)

Application of dental hygiene skills with a variety of clinical patients with dental hygiene care plans at the beginning level. Includes professionalism and ethics, infection control, body mechanics, evaluation of patient medical and dental history, assessment data, instrumentation, and removal of soft deposits. Also includes fluorides, clinical procedures, diverse patient populations, medical emergency procedures, and laboratory procedures.

Corequisite(s): DHE 190LC

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Spring.

### DHE 190LC Clinical Dental Hygiene I Lab

2 credit hours/ 6 periods (6 lab)

This is the Clinical Lab portion of DHE 190.

Corequisite(s): DHE 190

Offered: Spring.

### DHE 191 Clinical Dental Hygiene II

1 credit hour/ 1 period (1 lec.)

Application of dental hygiene skills on a variety of patients with care plans at the advanced level. Includes lectures on patients with special needs. Also includes rotations to off campus clinical sites.

Corequisite(s): DHE 191LC

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Summer.

### DHE 191LC Clinical Dental Hygiene II Lab

2 credit hours/ 6 periods (6 lab)

This is the Clinical Lab portion of DHE 191.

Corequisite(s): DHE 191

Offered: Summer.

### DHE 196 Independent Studies in Dental Hygiene

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent clinical applications, reading, projects, or lab activities for continuing student development in dental hygiene under faculty guidance.

Information: May be taken two times for a maximum of eight credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### DHE 204 Dental Materials

2 credit hours/ 2 periods (2 lec.)

Chemical and physical properties of dental materials used in dental practice. Includes materials used in preventive, restorative, and prosthetic procedures.

Corequisite(s): DHE 204LB

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Summer.

### DHE 204LB Dental Materials Lab

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DHE 204.

Corequisite(s): DHE 204

Offered: Summer.

### DHE 207 Pharmacology

3 credit hours/ 3 periods (3 lec.)

Introduction to the theory of pharmacology as it relates to dentistry. Includes identification of drugs which affect, or are affected by, dental treatment.

Information: This is a selective admission program course. Special permission is required before enrolling in this course.

Offered: Spring.

### DHE 208LB Pain and Anxiety Control for Dental Hygiene

1 credit hour/ 3 periods (3 lab)

Application of local anesthetics, nitrous oxide and oxygen sedation. Includes medical emergencies and dental complications.

Prerequisite(s): DHE 207.

Information: This is a selective admissions program course. Special permission is required. Completion of first year Dental Hygiene Program is required before enrolling in this course.

Offered: Fall.

**DHE 209 Computers and Practice Management**

1 credit hour/ 1 period (1 lec.)

Introduction to basic computer skills and applications used in dentistry. Includes computers and their functions, Microsoft software applications, dental office management software applications, the business of dentistry.

Corequisite(s): DHE 209LB

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Fall.

**DHE 209LB Computers and Practice Management Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DHE 209.

Corequisite(s): DHE 209

Offered: Fall.

**DHE 213 Advanced Periodontal Services**

1 credit hour/ 1 period (1 lec.)

Application of Dental Hygiene skills on advanced periodontal patients. Includes diagnosis, measurement, treatment of periodontal disease and use of antimicrobial therapies and anesthesia in the periodontal treatment plan. Also includes lectures of advanced periodontal treatment, implants, occlusal evaluation, periodontal maintenance, and surgical procedures.

Corequisite(s): DHE 213LB

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Spring.

**DHE 213LB Advanced Periodontal Services Lab**

1 credit hour/ 3 periods (3 lab)

This is the lab portion of DHE 213.

Corequisite(s): DHE 213

Offered: Spring.

**DHE 216 Community and Dental Health Education**

3 credit hours/ 3 periods (3 lec.)

Overview of public dental health education. Includes critiquing dental literature, community dental health planning, basic biostatistics, and epidemiology and research in the dental community. Also includes dental needs and demands, dental care delivery and prevention in the United States.

Information: This is a selective program course. Special permission is required before enrolling in this course.

Offered: Spring.

**DHE 290 Clinical Dental Hygiene III**

2 credit hours/ 2 periods (2 lec.)

Application of dental hygiene skills with a variety of clinical patients with dental hygiene care plans at the intermediate level.

Corequisite(s): DHE 290LC

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Fall.

**DHE 290LC Clinical Dental Hygiene III Lab**

4 credit hours/ 12 periods (12 lab)

This is the Clinical Lab portion of DHE 290.

Corequisite(s): DHE 290

Offered: Fall.

**DHE 291 Clinical Dental Hygiene IV**

1 credit hour/ 1 period (1 lec.)

Application of dental hygiene skills with a variety of clinical patients with dental hygiene care plans at the advanced level.

Corequisite(s): DHE 291LC

Information: This is a selective admissions program course. Special permission is required before enrolling in this course.

Offered: Spring.

**DHE 291LC Clinical Dental Hygiene IV**

3 credit hours/ 9 periods (9 lab)

This is the Clinical Lab portion of DHE 291.

Corequisite(s): DHE 291

Offered: Spring.

**DHE 296 Advanced Independent Study: Dental Hygiene**

1-4 credit hours/ 3-12 periods (3-12 lab)

Students independently continue their development in Dental Hygiene under the guidance of a faculty member.

Information: May be taken two times for a maximum of eight credit hours. Departmental approval is required before enrolling in this course.

Offered: Fall, Spring.

**DENTAL LABORATORY TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**DLT 101 Dental Morphology**

2 credit hours/ 2 periods (2 lec.)

Introduction to human dental morphology through lectures, readings, and sculpting exercises. Includes the dental health care team, anatomical landmarks and terminology, tooth development and landmarks, tooth sculpting, articulators and model mounting, occlusion, and care of laboratory instruments.

Corequisite(s): DLT 101LB

Information: Consent of program director is required before enrolling in this course.

Offered: Fall.

**DLT 101LB Dental Morphology Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DLT 101.

Corequisite(s): DLT 101

Offered: Fall.

**DLT 102 Non-Metallic Dental Materials**

3 credit hours/ 3 periods (3 lec.)

Principles of chemistry and physics, identification, selection, and manipulation of non-metallic dental materials. Includes an introduction to dental materials, management of materials, impression material, gypsum materials, dental waxes, refractory materials, and acrylic resin.

Prerequisite(s): DLT 101 or concurrent enrollment.

Information: Consent of program director is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DLT 103 Complete Dentures**

1 credit hour/ 1 period (1 lec.)

Examination of the relationship between upper and lower dentures as interpreted on a functional articulator. Includes evaluation of preliminary impressions and fabrication of models, custom impression trays, evaluation of final impression and master model, baseplate fabrication, occlusion rims, articulation and mounting of working models, and prosthetic tooth selection. Also includes setting artificial denture teeth, processing the trial denture, finishing complete dentures, and immediate denture with surgical template.

Prerequisite(s): DLT 101 or concurrent enrollment.Corequisite(s): DLT 103LB

Information: Consent of program director is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DLT 103LB Complete Dentures Lab**

3 credit hours/ 9 periods (9 lab)

This is the Lab portion of DLT 103.

Corequisite(s): DLT 103

Offered: May not be offered this year, check class schedule.

**DLT 104 Dental Occlusion**

2 credit hours/ 2 periods (2 lec.)

Introduction to the principles of techniques used in the dental laboratory. Includes how to trace and label all aspects of the maxillary and mandibular teeth, control of inlay wax application, restoring occlusal surfaces and clinical crowns to ideal occlusion, functional occlusion on articulated casts, and philosophies of different wax added systems.

Prerequisite(s): DLT 101.Corequisite(s): DLT 104LB

Information: Consent of program director is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DLT 104LB Dental Occlusion Lab**

2 credit hours/ 6 periods (6 lab)

This is the Lab portion of DLT 104.

Corequisite(s): DLT 104

Offered: May not be offered this year, check class schedule.

**DLT 105 Partial Denture Construction**

1 credit hour/ 1 period (1 lec.)

Construction of removable partial dentures (RPDs). Includes survey of preliminary and master casts, framework design, block out procedures, model duplication, preparation of refractory casts, RPD framework wax up, metal casting and finishing, and set-up of prosthetic teeth. Also includes processing and finishing of acrylic denture base material, repairs and relines, and soldering of dental alloys.

Prerequisite(s): DLT 101 or concurrent enrollment.Corequisite(s): DLT 105LB

Information: Consent of program director is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DLT 105LB Partial Denture Construction Lab**

3 credit hours/ 9 periods (9 lab)

This is the Lab portion of DLT 105.

Corequisite(s): DLT 105

Offered: May not be offered this year, check class schedule.

**DLT 106 Orthodontics and Maxillofacial Construction**

2 credit hours/ 2 periods (2 lec.)

Construction and theory of simple orthodontic and maxillofacial appliances. Includes evaluation of preliminary impressions and fabrication of orthodontic study models, model trimming and evaluation, classification of occlusion and malocclusion types, tooth numbering systems and identification, wrought wire fabrication, and application of wire bending skills. Includes fabrication of removable tooth retaining and moving appliances, fixed space maintaining appliances, and fabrication of a prosthetic nose.

Prerequisite(s): DLT 101 or concurrent enrollment.Corequisite(s): DLT 106LB

Information: Consent of program director is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DLT 106LB Orthodontics and Maxillofacial Construction Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DLT 106.

Corequisite(s): DLT 106

Offered: May not be offered this year, check class schedule.

**DLT 108 Laboratory Management**

3 credit hours/ 3 periods (3 lec.)

Examination of the principles of dental laboratory management. Includes blood born pathogens, infection control guidelines and procedures, Occupational Safety and Health Administration (OSHA) regulations for dental laboratories, post exposure plan, legal and ethical aspects of the industry, history of dentistry, National Association of Dental Laboratories, and establishing a dental laboratory.

Prerequisite(s): DLT 101 or concurrent enrollment.

Information: Consent of program director is required before enrolling in this course.

Offered: Spring.

**DLT 201 Dental Laboratory I**

2 credit hours/ 2 periods (2 lec.)

Introduction to the principles and techniques used in the dental laboratory. Includes fabrication and articulation of removable die models, functional occlusion in wax crown and bridge patterns and in crown and bridge metal castings, spruing, investing, and casting crown and bridge patterns, and repairs and soldering.

Prerequisite(s): DLT 101. Corequisite(s): DLT 201LB

Information: Consent of program director is required before enrolling in this course.

Offered: Fall.

**DLT 201LB Dental Laboratory I Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DLT 201.

Corequisite(s): DLT 201

Offered: Fall.

**DLT 202 Dental Metallurgy**

3 credit hours/ 3 periods (3 lec.)

Examination of metals currently used by the dental technician. Includes introduction to dental alloys, physical and chemical properties of dental alloys, weights, measures, and calculations, alloy processing, equipment calibration, metal treatment and torch techniques, electro- polisher and electrolyte solution operation and safety procedures, and metal sensitivities and allergies.

Prerequisite(s): DLT 101.

Information: Consent of program director is required before enrolling in this course.

Offered: Fall.

**DLT 203 Fixed Bridgework**

1 credit hour/ 1 period (1 lec.)

Construction of fixed single tooth restorations and bridgework. Includes prescriptions and work authorizations, fixed restoration design and preparation requirements, waxing, seating, finishing, and evaluation of fixed single tooth restorations and bridgework castings.

Prerequisite(s): DLT 101 or concurrent enrollment.Corequisite(s): DLT 203LB

Information: Consent of program director is required before enrolling in this course.

Offered: Fall.

**DLT 203LB Fixed Bridgework Lab**

3 credit hours/ 9 periods (9 lab)

This is the Lab portion of DLT 203.

Corequisite(s): DLT 203

Offered: Fall.

**DLT 204 Dental Laboratory II**

2 credit hours/ 2 periods (2 lec.)

Continuation of DLT 201. Principles and techniques used in the dental laboratory. Includes physics of light, color theory, edodontically treated teeth, reduction

copings, attachments, application of dental attachments, swing lock retention for removable partial dentures, and semi- precision attachment in a bridge.

Prerequisite(s): DLT 101, 104, 108, 201, 202, and 203.Corequisite(s): DLT 204LB

Information: Consent of program director is required before enrolling in this course.

Offered: Spring.

**DLT 204LB Dental Laboratory II Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of DLT 204.

Corequisite(s): DLT 204

Offered: Spring.

**DLT 206 Dental Ceramics**

2 credit hours/ 2 periods (2 lec.)

Introduction to porcelain fused to metal techniques. Includes prescriptions and work authorizations, porcelain fused to metal restoration designs and preparation requirements, design, wax-up, and finishing of porcelain fused to metal substructure, metal conditioning, building ceramic restorations, porcelain furnace operation, contouring fired porcelain, and finishing.

Prerequisite(s): DLT 101, 104, 108, 202 and 203.Corequisite(s): DLT 206LB

Information: Consent of program director is required before enrolling in this course.

Offered: Spring.

**DLT 206LB Dental Ceramics Lab**

2 credit hours/ 6 periods (6 lab)

This is the Lab portion of DLT 206.

Corequisite(s): DLT 206

Offered: Spring.

**DLT 207 Advanced Dental Laboratory Technology**

3 credit hours/ 3 periods (3 lec.)

Application of dental laboratory techniques. Includes complete dentures, partial dentures, crown and bridge work, dental ceramics, orthodontics, and maxillofacial appliances.

Prerequisite(s): DLT 101, 104, 108, 202, and 203.Corequisite(s): DLT 207LB

Information: Consent of program director is required before enrolling in this course.

Offered: Spring.

**DLT 207LB Advanced Dental Laboratory Technology Lab**

3 credit hours/ 6 periods (6 lab)

This is the Lab portion of DLT 207.

Corequisite(s): DLT 207

Offered: Spring.

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**DIGITAL ARTS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**DAR 051 Basic Macintosh for Computer Graphics**

1 credit hour/ 2 periods (2 lab)

Introduction to the Macintosh computer environment. Includes operating system, techniques, document file, hardware, and disks.

Offered: Fall, Spring, Summer.

**DAR 100 Fundamentals of Rendering**

4 credit hours/ 5 periods (3 lec., 2 lab)

Basic principles and methods of drawing as applied to digital and graphic design. Includes overview of drawing software, thumbnails, objects in perspective, media, drawing techniques, composition drawing, drawing styles.

Offered: Fall, Spring, Summer.

**DAR 101 Color Rendering and Theory**

4 credit hours/ 5 periods (3 lec., 2 lab)

Basic color theory and rendering principles as applied to digital and graphic design. Includes color terminology, color perspective, color perception, meaning of colors, media characteristics, drawing software, traditional drawing methods, and professional environment. Also includes utilizing wood, food, paper, metallic, landscape, and cloth items.

Recommendation: Completion of DAR 100 before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 103 Introduction to Digital Arts**

3 credit hours/ 3 periods (3 lec.)

Theory, history, and practice of digital image manipulation. Includes digitally based technologies, analog to digital conversion, data compression, data security, synchronization of digital materials, standards and intellectual property, civil liberties in the digital age, and digital image sound distribution and exhibition.

Offered: Fall, Spring, Summer.



**DAR 110 Digital Hub: Desktop Music, Movies, and Photos**

4 credit hours/ 5 periods (3 lec., 2 lab)

Exploration of the digital multimedia hub environment. Includes hardware, software, project planning, development, production, and saving, storing, and publishing digital hub projects.

Recommendation: Completion of DAR 051 or computer literacy skills before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DAR 111 Typography**

4 credit hours/ 5 periods (3 lec., 2 lab)

Letter forms and use in visual communications. Includes type rendering, letter spacing, type and headline groupings, type relationships, type images, and type applications.

Prerequisite(s): DAR 103.

Offered: Fall, Spring, Summer.

**DAR 112 Graphic Design I**

4 credit hours/ 5 periods (3 lec., 2 lab)

Basic principles of color and design as applied to the graphics industry. Includes creating focal points, unity, texture, space relationships, color control, color harmonies, and psychology of color.

Offered: Fall, Spring, Summer.

**DAR 115 Digital Video Editing**

4 credit hours/ 5 periods (3 lec., 2 lab)

Introduction to non-linear editing on the computer. historical development, digital video and audio formats, techniques & theory of editing, aspect ratios, organization of the edit, desktop environment, importing digital elements project organization, video and audio files, non-linear editing skills, applying transitions, designing titles, applying filters, digital and time line effects, importing graphics, mixing audio and video elements, synchronize sound with video, and exporting digital video projects. Includes historical development, digital video and audio formats, techniques and theory of editing, aspect ratios, organization of the edit, desktop environment, importing digital elements, project organization, video and audio files, non-linear editing skills, applying transitions, designing titles, applying filters, digital and time line effects, importing graphics, mixing audio and video elements, synchronize sound with video, and exporting digital video projects.

Offered: Fall, Spring.

**DAR 120 Applied Computer Graphics**

4 credit hours/ 5 periods (3 lec., 2 lab)

Introduction to current computer graphics software. Includes Desktop publishing, postscript illustration, painting or photo editing, computer graphics hardware, and professional environment.

Offered: Fall, Spring, Summer.

**DAR 122 Desktop Graphics: Adobe Illustrator**

4 credit hours/ 5 periods (3 lec., 2 lab)

Computer generated graphics and illustrations. Includes current Adobe Illustrator software, computer graphics hardware, documents, and professional environment.

Prerequisite(s): DAR 051 and 120.

Offered: Fall, Spring, Summer.

**DAR 124 Writing for Film and Television**

3 credit hours/ 3 periods (3 lec.)

Examining dramatic writing in visual mediums and creating the story for the screen. Includes visual storytelling, story structure, working screen writers, writing scenes, finishing stories, writing for television, and directors and cinematographers.

Prerequisite(s): DAR 103.

Information: Concurrent enrollment may be approved with instructor or department chair recommendation.

Offered: Fall, Spring, Summer.

**DAR 125 Beginning Video Production**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and techniques of video production. Includes history of digital video, digital video camera and computer equipment, digital camera lenses, exposure, light, color, temperature, composition, portfolio preparation, and career options. Also includes practical experience as part of a production team.

Prerequisite(s): DAR 115 and 124.

Offered: Fall, Spring, Summer.

**DAR 127 Sound Production for Radio**

3 credit hours/ 4 periods (2 lec., 2 lab)

Methods and techniques of the operation of radio broadcasting equipment. Includes use of studio microphones, audio control consoles, audio type cartridge machines, audio tape standard recorders and optical disk machines.

Prerequisite(s): DAR 103 and 124.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring, Summer.

**DAR 128 Digital Photography I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to digital photography as an art form with an emphasis on fundamental techniques of the digital camera and the digital darkroom. Includes digital cameras with manual functions, digital darkroom, digital printing, studio lighting, image composition, portfolio development, and critical analysis. Also includes the use of state-of-the-art professional quality computers and image processing software, professional digital cameras and printers, and a lighting studio with professional lighting equipment.

Recommendation: Completion of DAR 051 or experience in computer skills before enrolling in this course.

Information: Same as ART 128. Students are strongly recommended to own or have access to a digital camera with manual exposure control and access to a computer with image processing software. Cameras and professional quality computers and software will be provided during the course. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees.

Offered: Fall, Spring.

**DAR 140 Digital Arts Illustration Studio: Illustration Techniques and Media**

4 credit hours/ 5 periods (3 lec., 2 lab)

Basic principles, techniques and media applied to digital and traditional illustration styles, subject matter used in print illustration. Includes subject, media, technique, composition, and professional environment.

Prerequisite(s): DAR 101.

Offered: Fall, Spring, Summer.

**DAR 142 Airbrush Techniques I**

4 credit hours/ 5 periods (3 lec., 2 lab)

Introduction to the use of the airbrush. Includes airbrush operation, retouching, illustration, tools and materials, techniques, and professional environment.

Prerequisite(s): DAR 100.

Offered: May not be offered this year, check class schedule.

**DAR 145 Digital Arts Illustration Studio: Character Development for Animation and Print**

4 credit hours/ 5 periods (3 lec., 2 lab)

Principles and techniques applied to character development used for animation, products and print material. Includes drawing in a loose manner, designing characters, materials, techniques and construction, various applications, and professional environment.

Prerequisite(s): DAR 140.

Offered: Fall, Spring, Summer.

**DAR 173 History of American Cinema**

3 credit hours/ 3 periods (3 lec.)

American cinematic film making as an art form, economic force, and system of representation and communication. Includes historical development of different genres, significant films and directors, film studios, and technologies. Also includes film screening sessions, guest film makers, and cinema historians.

Offered: Fall, Spring.

**DAR 174 Business of Audio**

3 credit hours/ 4 periods (2 lec., 2 lab)

Economic, legal and financial aspects of the music and recording industry. Covers current markets for music videos, compact disks, and DAT technologies. Also examines recording companies and artists, music writers and publishers, copyright laws, and general music/audio industry concerns.

Prerequisite(s): DAR 103 and 124.

Offered: Fall, Spring, Summer.

**DAR 175 Cinematography**

3 credit hours/ 4 periods (2 lec., 2 lab)

Basic techniques of motion picture production. Includes camera operation, animation application, film editing, and motion picture lab processes. Also includes the creation and production of super 8 films.

Prerequisite(s): DAR 124 or concurrent enrollment.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring, Summer.

**DAR 176 Film Animation**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to film animation techniques. Includes the organization of various creative arts in the production of animated film with emphasis on the individual's use of animation as a means of personal expression. Includes an historical overview of animation, storyboard techniques, developing story structure, translating concepts into visual terms, character design, background, layout drawings, animation techniques, preproduction sound elements, and the integration of these elements into the production of a complete sound animation film.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring.



**DAR 177 Location Sound for Film and Video**

4 credit hours/ 5 periods (3 lec., 2 lab)

Theory and practice of location sound recording for feature films, documentaries, video productions, and multimedia. Includes hands-on experience with sync sound recording, time code, microphone applications, problem-solving on location. Prerequisite(s): DAR 103 and 124.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring.

**DAR 196 Digital Arts Independent Projects: Media Projects**

1-4 credit hours/ 3-12 periods (3-12 lab)

Students independently continue their development in media communications with the help of a faculty member.

Information: May be taken three times for a maximum of twelve credit hours. Completion of six credit hours of DAR courses and consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

**DAR 199 Introduction to Co-op: Digital Arts**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

Prerequisite(s): DAR 112, 210, and 211. Corequisite(s): DAR 199WK

Offered: Fall, Spring, Summer.

**DAR 199WK Co-op Work: Digital Arts**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

Corequisite(s): DAR 199

Offered: Fall, Spring, Summer.

**DAR 205 Lighting for Film and Video**

4 credit hours/ 6 periods (2 lec., 4 lab)

Creative lighting techniques, practices, and use of equipment. Includes lighting theory, color theory, and technical and artistic lighting methods used in feature film, commercials, and video production. Also includes working as part of a film or video lighting production team.

Prerequisite(s): DAR 124, 125, or 175.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring, Summer.

**DAR 210 Digital Arts Design Studio: Advertising Design**

4 credit hours/ 5 periods (3 lec., 2 lab)

Principles and techniques as applied to advertising design. Includes ad design, billboard design, logo design, poster design, brochure design, package design, and other mediums.

Prerequisite(s): DAR 112.

Offered: Fall, Spring, Summer.

**DAR 211 Digital Arts Design Studio: Product Design**

4 credit hours/ 5 periods (3 lec., 2 lab)

Principles and techniques applied to product design. Includes package design, card design, textile design, CD design, DVD design, game design, display design, and sign design.

Prerequisite(s): DAR 112.

Offered: Fall, Spring, Summer.

**DAR 212 Digital Arts Design Studio: Package Design**

4 credit hours/ 5 periods (3 lec., 2 lab)

Procedures and techniques for creating wrapper and container comprehensives. Includes layout, packaging, construction techniques, mock-ups, and the professional environment.

Prerequisite(s): DAR 112.

Offered: Fall, Spring, Summer.

**DAR 214 Digital Arts Business & Portfolio**

2 credit hours/ 3 periods (1 lec., 2 lab)

Digital Arts Business and Portfolio Business techniques for the digital arts industry. Includes designer/client relationship, fee structures for designer services, documenting time, portfolio development, advertising and promotion.

Prerequisite(s): DAR 112.

Information: Same as GAM 214.

Offered: Fall, Spring, Summer.

**DAR 215 Advanced Cinematography**

4 credit hours/ 6 periods (2 lec., 4 lab)

Tools, techniques, and procedures involved in professional film production. Includes the film proposal, script breakdown, pre-production and post-production of one 16 mm film, and laboratory experience with film production equipment.

Prerequisite(s): DAR 175.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring.

**DAR 217 Post Production for Film**

4 credit hours/ 5 periods (3 lec., 2 lab)

Introduction to film post production video and audio techniques and aesthetics of film editing. Includes step-by-step editing room procedures leading to final screening. Also includes logging, storing, retrieving footage, synchronizing dailies, selecting takes, editing of dialogue and sound effects, final mixing, and color timing.

Prerequisite(s): DAR 215.

Offered: Fall, Spring, Summer.

**DAR 218 Introduction to Film Music**

3 credit hours/ 3 periods (3 lec.)

Historical development of and fundamental techniques applied to film music. Includes influential and new composers and scores, relationships to genres, scripts, action and characters, and business and cultural associations. Also includes composing for varying media, spotting, timing, recording, editing and dubbing, and electronic and contemporary scoring for specialized styles and themes as applied to motion pictures, television, video, and the new media.

Prerequisite(s): DAR 103, and 124.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.

Offered: Fall, Spring, Summer.

**DAR 220 DeskTop Publishing for Digital Arts: QuarkXpress**

4 credit hours/ 5 periods (3 lec., 2 lab)

Design and creation of publication on a personal computer system. Includes current QuarkXpress software, documents, hardware, and professional environment.

Prerequisite(s): DAR 051 or 120.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.

Offered: Fall, Spring.

**DAR 221 Photo Image Editing: Adobe PhotoShop**

4 credit hours/ 5 periods (3 lec., 2 lab)

Computer retouching and manipulation of photos and illustrations. Includes current Adobe PhotoShop software, edit and retouch, hardware and professional environment.

Prerequisite(s): DAR 051 or 120.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.

Offered: Fall, Spring, Summer.

**DAR 222 Advanced Photo Image Editing: Adobe PhotoShop**

4 credit hours/ 5 periods (3 lec., 2 lab)

Continuation of DAR 221. Includes advanced techniques using current Adobe PhotoShop software, hardware, documents, and professional environment.

Prerequisite(s): DAR 221.

Offered: Fall, Spring.

**DAR 223 Digital Drawing and Painting**

4 credit hours/ 5 periods (3 lec., 2 lab)

Design and illustration on a personal computer system using current paint software. Includes color, drawing and painting tools, editing and text tools, brush customizing, special effects, and applications.

Prerequisite(s): DAR 101.

Offered: Fall, Spring.

**DAR 224 Advanced Screenwriting**

3 credit hours/ 3 periods (3 lec.)

In-depth examination of writing in visual mediums. Includes history of screen writing, development of the screenplay, genre, development of the pitch and story premise, character development, screenplay formats, and drafting a screenplay and premises.

Prerequisite(s): DAR 103 and 124.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.

Offered: Fall, Spring, Summer.

**DAR 225 Advanced Video Production**

4 credit hours/ 6 periods (2 lec., 4 lab)

Production of television programs. Includes professional digital video production, digital formats and scripting, production plan, utilization of digital camera and lighting equipment in remote on-location sites, post production, linear and non-linear editing equipment and approaches, editing and the visual storyline, portfolio.

Prerequisite(s): DAR 125.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring, Summer.

**DAR 226 DeskTop Publishing for Digital Arts: Adobe InDesign**

4 credit hours/ 5 periods (3 lec., 2 lab)

Design and creation of publications on a personal computer system. Includes current Adobe InDesign software documents, computer graphics hardware, and professional environment.

Prerequisite(s): DAR 051 or 120.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.  
Offered: Fall, Spring.

### **DAR 228 Advanced Desktop Graphics: Adobe Illustrator**

4 credit hours/ 5 periods (3 lec., 2 lab)

Advanced computer generated vector graphics and illustrations. Includes current Adobe Illustrator software, computer graphics hardware, design, vector graphic documents, and professional environment.

Prerequisite(s): DAR 122.

Offered: May not be offered this year, check class schedule.

### **DAR 230 Production Techniques for Print**

4 credit hours/ 5 periods (3 lec., 2 lab)

Preparation of artwork for printing. Includes crop marks, typesetting to specifications, typesetting to match a layout line breaks/spelling, spot colors, duotones, bleeds/reversed type, two sided documents, dummy documents, line art/photos, output, newspaper and magazine ads, logo specifications, paper stock, outline photos, CMYK process colors, multiple page booklets, trapping, and professional work environment.

Prerequisite(s): DAR 221 or concurrent enrollment, and 121 or 220 or 226, and 122 or 123.

Offered: Fall, Spring, Summer.

### **DAR 232 Digital Photography II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of DAR/ART 128. Includes intermediate digital cameras with manual functions, intermediate digital darkroom and digital output, quality of light, intermediate image composition, multiple images, intermediate portfolio development, and critical analysis. Also includes the intermediate use of state-of-the-art professional quality computers and image processing software, professional digital cameras, printers, and a lighting studio with professional lighting equipment.

Prerequisite(s): DAR/ART 128.

Recommendation: Completion of DAR 221 before enrolling in this course.

Information: Same as ART 232. Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. Cameras and professional quality computers and software will be provided during the course. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. The prerequisite may be waived for basic skills in digital photography. See a DAR/ART digital photography instructor for prerequisite information.

Offered: Fall, Spring.

### **DAR 233 Digital Photography III**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of DAR/ART 232. Includes digital capture and image acquisition, advanced digital darkroom and digital output, advanced image composition, advanced multiple images integration, advanced portfolio development, and advanced critical analysis. Also includes the advanced use of state-of-the-art professional quality computers and image processing software, professional digital cameras, scanners, printers, and projectors.

Prerequisite(s): DAR/ART 232 and DAR 221.

Information: Same as ART 233. Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. Cameras and professional quality computers and software will be provided during the course. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. The prerequisite may be waived for basic skills in digital photography. See ART/DAR instructor for prerequisite information.

Offered: Spring.

### **DAR 235 Advanced Design and Production Applications**

4 credit hours/ 5 periods (3 lec., 2 lab)

Design principles and production techniques as applied to the graphics industry. Includes complex designs with focal points, unity, texture, space relationships, color harmonies, psychology of color, bleed preparation, multiple page documents, paper stock, die cuts in complex designs, and special finishes.

Prerequisite(s): DAR 112 and 230.

Offered: Fall.

### **DAR 236 Advanced Desktop Publishing**

4 credit hours/ 5 periods (3 lec., 2 lab)

Advanced design and creation of publications using current QuarkXpress and InDesign software. Includes advanced applications in preferences, complex documents, advanced layers, libraries, advanced typography, automating/synchronizing text, advanced style sheet applications, books, tables, WEB and interactive features, and Portable Document Format (PDF).

Prerequisite(s): DAR 220 and 226.

Offered: Spring.

### **DAR 240 Digital Arts Illustration Studio: Book Illustration**

4 credit hours/ 5 periods (3 lec., 2 lab)

Principles and techniques applied to various book, graphic novel and comic magazine illustration. Includes advanced subjects, media, techniques, various applications, and professional environment.

Prerequisite(s): DAR 101.

Offered: Fall, Spring, Summer.

### **DAR 250 Computer 2D Animation: Adobe After Effects**

4 credit hours/ 5 periods (3 lec., 2 lab)

Computer animation. Includes storyboards, techniques and terms, logo animation, character animation, metamorphic animation, production techniques.

Prerequisite(s): DAR 221 or 223.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.

Offered: Fall, Spring.

### **DAR 251 Computer 3D Animation: Maya**

4 credit hours/ 5 periods (3 lec., 2 lab)

Beginning modeling, rendering, and animation on the computer using Maya, may include other current industry software. Includes menus, image creation, color, printing, precision model making, object creation and design, and compatibility.

Prerequisite(s): DAR 250.

Offered: Fall, Spring.

### **DAR 252 Digital Multimedia Design I**

4 credit hours/ 5 periods (3 lec., 2 lab)

Digital Multimedia Design I Basics of multimedia design and authoring software. Includes current multimedia authoring software, graphics, text, animation, sound, authoring, and publishing methods.

Prerequisite(s): DAR 051 or 120.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.

Offered: Fall, Spring.

### **DAR 254 Digital Multimedia Design II**

4 credit hours/ 5 periods (3 lec., 2 lab)

Continuation of DAR 252. Includes multimedia formats and components, creation processes, production processes, business and legal considerations, and marketing and distribution.

Prerequisite(s): DAR 252.

Offered: Fall, Spring.

### **DAR 255 Television Commercial Design**

4 credit hours/ 5 periods (3 lec., 2 lab)

Designing television commercials. Includes a basic overview of videography, production procedures, conceptualizing, storyboarding, budgeting, casting, videotaping, editing, music, special effects, and legal considerations.

Prerequisite(s): DAR 225.

Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.

Offered: Fall, Spring, Summer.

### **DAR 256 Web Design**

4 credit hours/ 5 periods (3 lec., 2 lab)

Design and production of graphics for the World Wide Web. Includes introduction to the World Wide Web, hardware, software (browsers), hypertext mark-up language (HTML), home pages, links, uploading, multimedia, and web sites.

Prerequisite(s): DAR 122 and 221.

Offered: Fall, Spring.

### **DAR 257 Advanced Web Design**

4 credit hours/ 5 periods (3 lec., 2 lab)

Advanced design and production of Web sites and home pages. Includes planning and management, user interface, design, multimedia, careers in World Wide Web, and web education.

Prerequisite(s): DAR 221 and 256.

Offered: Fall, Spring.

### **DAR 258 Advanced Computer 3D Animation: Maya**

4 credit hours/ 5 periods (3 lec., 2 lab)

Advanced modeling, rendering, and animation utilizing high-end character 3D software. Includes a review of 3D basics, advanced modeling, animation, and surfacing techniques, advanced lighting and camera effects, and kinematics and contortions.

Prerequisite(s): DAR 251.

Offered: Fall, Spring, Summer.

### **DAR 261 Adobe Illustrator Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Computer generated text and graphics for illustration. Includes Macintosh environment, scanning, illustration software, and techniques and procedures.

Information: Basic Macintosh skill required before enrolling in this course.

Offered: Fall, Spring.

**DAR 262 QuarkXpress Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Computer generated text and graphics for publication. Includes DeskTop environment, QuarkXpress software, and creating and printing a document.

Information: Basic Macintosh skill required before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 263 Adobe PhotoShop Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Digital photograph manipulation in Adobe PhotoShop. Includes digital photographs, placing photographs, tools and palette, color manipulation, and output.

Information: Basic Macintosh skill required before enrolling in this course.

Offered: Fall, Spring.

**DAR 264 Macromedia Freehand Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Computer generated graphics and text for illustration. Includes Macintosh environment, scanning an image, illustration software (Macromedia Freehand), creating and printing an illustration, and professional environment.

Information: Basic Macintosh skill required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DAR 265 Beginning Web Design Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Design and production of graphics for the World Wide Web. Includes introduction to the World Wide Web, hardware, software, Hyper Text Mark-Up Language (HTML), home pages, links, and uploading.

Information: Basic Macintosh and computer graphics experience required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DAR 266 Macromedia Director Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Design of interactive computer presentations for training, selling, information, and entertaining. Includes creating original art, presentations, interactivity, and importing and outputting.

Information: Basic Macintosh skill is required before enrolling in this course.

Offered: Fall, Spring.

**DAR 268 Adobe After Effects Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Composite of animations, photos, and videos into presentations. Includes keyframe animation, compositing files for production, special effects, and outputting to video and computer formats.

Information: Basic Macintosh skill required before enrolling in this course.

Offered: Fall, Spring.

**DAR 269 Advanced Web Design Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Continuation of DAR 265. Includes user interface, review of JAVA, Dynamic HTML, and XML for graphics and web design.

Prerequisite(s): DAR 265.

Information: Web design experience required before enrolling in this course.

Offered: Fall, Spring.

**DAR 270 Adobe Photoshop Tips MAC**

1 credit hour/ 1 period (1 lec.)

Computer retouching and manipulation of photos and illustrations. Includes current Adobe Photoshop software, effects, hardware, and professional environment.

Information: Experience with Adobe Photoshop required before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 271 DeskTop Prepress Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Integration of QuarkXpress, Illustrator, and PhotoShop in preparing computer generated art for outputting to film and print. Includes trapping, color, file formats outputting, and prepress considerations.

Prerequisite(s): DAR 122 or 261, 220 or 262, 221 or 263.

Information: Experience using QuarkXpress, Illustrator, and PhotoShop is required before enrolling in this course.

Offered: Fall, Spring.

**DAR 272 Advanced Adobe PhotoShop Seminar on the Macintosh**

1 credit hour/ 1 period (1 lec.)

Computer generated graphics and illustrations. Includes current software, documents, computer graphics hardware, and professional environment.

Prerequisite(s): DAR 221 or 263.

Information: Experience with Adobe PhotoShop is required before enrolling.

Offered: Fall, Spring.

**DAR 275 Basic Audio Production**

4 credit hours/ 6 periods (2 lec., 4 lab)

Fundamental tools, techniques, and procedures for multi-track recording. Includes application to film, television, radio, and the recording industry. Also

includes using multi-track recording and mixing techniques to produce original production soundtracks.

Prerequisite(s): DAR 124.

Information: This course will require additional expenses for supplies in addition to course and lab fees.

Offered: Fall, Spring.

**DAR 276 Advanced Audio Production**

4 credit hours/ 6 periods (2 lec., 4 lab)

Production of audio for film, television, radio, and the recording industry. Includes utilization of professional audio equipment on location, as well as in studio operation. Also includes post-production of audio for film and video, and audio production for special problems in the arts, education, and industry.

Prerequisite(s): DAR 275.

Information: This course will require additional expenses supplies in addition to course and lab fees.

Offered: Fall, Spring, Summer.

**DAR 277 Film/Video Production Financing**

3 credit hours/ 3 periods (3 lec.)

Strategies for production financing for independent film/ video projects. Includes positioning media projects in the marketplace, writing fundable proposals, and identifying funding sources. Also includes developing a prospectus for a media project.

Prerequisite(s): DAR 124.

Offered: Fall, Spring.

**DAR 285 Documentary Television and Film Production**

4 credit hours/ 6 periods (2 lec., 4 lab)

Fundamentals of nonfiction film/video production. Includes history of documentary production, European vs. American documentary makers, operating the camera, film and video techniques, television themes, production of a television documentary, and location problems.

Prerequisite(s): DAR 103.

Information: Course will require additional expenses for supplies.

Offered: Fall, Spring.

**DAR 288 Digital Arts Capstone**

4 credit hours/ 5 periods (3 lec., 2 lab)

Production of digital media presentations with a focus on extended, in-depth study of the digital art design process. Develop professional quality creative projects, utilizing a wide range of digital tools and techniques. Includes production of digital arts projects, current digital art tools and processes, professional design relationships, developing supplemental portfolio presentations, and publishing, presenting, and distributing digital art projects.

Recommendation: Completion of Digital Arts Associate degree or B.A. or A.A. or equivalent portfolio before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**DAR 290E2 Digital Video and Film Arts Internship**

3 credit hours/ 15 periods (15 lab)

Work environment in digital video/film arts. Includes interpersonal communication, professional development, employment strategies, and field experience.

Prerequisite(s): DAR 103, 124, 125, and 175.

Information: Consent of the video and film arts instructor and 12 credit hours of DAR course work is required to be placed in an internship position.

Offered: Fall, Spring, Summer.

**DAR 290E3 Internship in Digital Arts/Graphics**

3 credit hours/ 15 periods (15 lab)

Environment of digital arts/graphics field. Includes interpersonal communication, professional development, employment strategies, and field experience.

Prerequisite(s): DAR 101, 111, and 112.

Information: Consent of the digital arts instructor or department chair and 12 credit hours of DAR course work is required to be placed in an internship position.

Offered: Fall, Spring, Summer.

**DAR 296 Digital Arts Independent Projects**

1-4 credit hours/ 3-12 periods (3-12 lab)

Self-directed laboratory projects. Includes establishing objectives, procedures, and a method of evaluation.

Information: May be taken four times for a maximum of sixteen credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 296I1 Digital Arts Independent Projects: Design**

1-4 credit hours/ 3-12 periods (3-12 lab)

Self-directed laboratory projects. Includes establishing objectives, procedures and a method of evaluation.

Information: May be taken four times for a maximum of sixteen credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.



**DAR 29612 Digital Arts Independent Projects: Illustration**

1-4 credit hours/ 3-12 periods (3-12 lab)

Self-directed laboratory projects. Includes establishing objectives, procedures and a method of evaluation.

Information: May be taken four times for a maximum of sixteen credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 29613 Digital Arts Independent Projects: Desktop Publishing**

1-4 credit hours/ 3-12 periods (3-12 lab)

Self-directed laboratory projects. Includes establishing objectives, procedures, and a method of evaluation.

Information: May be taken four times for a maximum of sixteen credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 29614 Digital Arts Independent Projects: Computer Art**

1-4 credit hours/ 3-12 periods (3-12 lab)

Self-directed projects. Includes establishing objectives, procedures, and a method of evaluation.

Information: May be taken four times for a maximum of sixteen credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 29618 Digital Art Independent Projects: Advanced Media Projects**

1-4 credit hours/ 3-12 periods (3-12 lab)

Students independently continue their development in media communications with the help of a faculty member.

Information: May be taken three times for a maximum of twelve credit hours. DAR 196, 12 credit hours of DAR courses, and consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**DAR 297 Digital Arts Seminar:**

.25-4 credit hours/ .25-4 periods (.25-4 lec.)

Communication graphics job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

Information: May be taken three times for a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**DAR 299 Introduction to Co-op: Digital Arts**

1 credit hour/ 1 period (1 lec.)

See cooperative education section for description.

Prerequisite(s): DAR 199.Corequisite(s): DAR 299WK

Offered: Fall, Spring, Summer.

**DAR 299WK Co-op Work: Digital Arts**

1-8 credit hours/ 5-40 periods (5-40 lab)

See cooperative education section for description.

Prerequisite(s): DAR 199.Corequisite(s): DAR 299

Offered: Fall, Spring, Summer.

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**DIRECT CARE PROFESSIONAL**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**DCP 101 Direct Care Professional: Principles of Care Giving**

2.25 credit hours/ 2.25 periods (2.25 lec.)

Addresses principles and application of care giving and personal care in the various home and community based settings. Includes examination of legal and ethical issues, communication, activities, nutrition and food preparation, housekeeping, infection control, safety, and time and stress management for the Direct Care Professional (DCP).

Offered: Fall, Spring.

**DCP 102 Direct Care Professional: Aging/Physical Disabilities**

2 credit hours/ 2 periods (2 lec.)

Principles and applications of provision of care in the home environment for older adults and persons with disabilities. Overview of services and continuum of care; aspects of independent living; and roles and responsibilities of Direct Care Professionals (DCPs). Includes legal and ethical issues, vulnerable adult abuse, reporting requirements, care plans, biological aspects of aging, physical disabilities and chronic conditions, psychological and cognitive conditions and implications for DCPs. An overview of dementia-specific care is incorporated.

Prerequisite(s): DCP 101.

Offered: Fall, Spring.

**DCP 103 Direct Care Professional: Alzheimer's/Forms of Dementia**

2 credit hours/ 2 periods (2 lec.)

Principles and applications of provision of care in the home environment for persons with Alzheimer and related forms of dementia. Overview of services and continuum of care; aspects of independent living; roles and responsibilities of Direct Care Professionals (DCPs). Also includes legal and ethical issues, vulnerable adult abuse, reporting requirements, and care plans. Emphasis on aspects of Alzheimer's as related to physical disabilities and chronic conditions, psychological and cognitive conditions and implications for DCPs.

Prerequisite(s): DCP 101.

Offered: Fall.

**DCP 104 Direct Care Professional: Developmental Disabilities**

2 credit hours/ 2 periods (2 lec.)

Addresses a foundational knowledge for the provision and application of quality care for people with developmental disabilities by Direct Care Professionals (DCPs) or family caregivers. Includes the examination and application of philosophical, social, medical, physical, legal, and ethical issues faced by people with disabilities.

Prerequisite(s): DCP 101.

Offered: Fall.

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**EARLY CHILDHOOD EDUCATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ECE 107 Human Development and Relations**

3 credit hours/ 3 periods (3 lec.)

Analysis of the elements which affect growth and development throughout the life span. Includes theories and issues, prenatal development and birth, infancy and early childhood, middle childhood, adolescence, young adulthood, late adulthood, death, and communities and human development.

Prerequisite(s): REA 112 or concurrent enrollment.

Offered: Fall, Spring, Summer.

**ECE 108 Literature/Social Studies for Children**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Survey of principles, materials, and techniques for the selection and evaluation of children's literature and social studies materials. Includes incorporating an appreciation of other cultures, and planning and implementing developmentally appropriate activities.

Offered: Spring, Summer.

**ECE 110 Communication and Language: Early Literacy for Children**

3 credit hours/ 3 periods (3 lec.)

Study of oral and written language acquisition and emergent literacy. Includes principles, methods, and current teaching techniques. Also includes an examination of cultural diversity, instructional material, assessments, and computer technology.

Prerequisite(s): ECE 117.

Offered: Spring.

**ECE 112 Music and Art for Children**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Survey of principles, materials, techniques, and resources for teaching music/art to children. Includes planning, implementing, and evaluating developmentally appropriate activities. Also includes a compilation of resource materials.

Offered: Fall, Spring.

**ECE 114 Effective Parenthood**

3 credit hours/ 3 periods (3 lec.)

Identification of elements of determinants of positive child rearing practices. Includes physical, cognitive, personality, and moral development. Also includes parenting skills and positive guidance techniques for conflict resolution and effective interpersonal relationships.

Prerequisite(s): ECE 117.

Offered: Spring.

**ECE 115 Supervision and Administration of Early Childhood Programs**

3 credit hours/ 3 periods (3 lec.)

Analysis of elements for planning, implementing, maintaining, and evaluating early childhood education programs. Includes regulations, health and safety issues, and staff selection, development, and supervision. Includes management of facilities, budget, equipment, supplies, and arranging environment.

Prerequisite(s): ECE 117, MAT 082, REA 112, and WRT 100.

Information: Same as CDA 115.

Offered: Spring.



**ECE 117 Child Growth and Development**

3 credit hours/ 3 periods (3 lec.)

Analysis of concepts and issues in growth and development of children. Includes prenatal factors, the birth process, and determinants of physical, cognitive, social, cultural, emotional, and moral development through adolescence.

Prerequisite(s): REA 112 or concurrent enrollment, and WRT 100.

Offered: Fall, Spring, Summer.

**ECE 124 Math and Science for Children**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Theories, methods, and techniques for teaching math and science. Includes selection, development, and presentation of instructional materials with an integrated curriculum approach. Also includes computer applications.

Prerequisite(s): MAT 082.

Offered: Fall.

**ECE 125 Nutrition, Health, and Safety for the Young Child**

3 credit hours/ 5 periods (2 lec., 3 lab)

In-depth study of the health, safety and nutritional needs of children. Includes feeding and growth, feeding and health practices, planning and serving food to children, food safety: principles to practice, menus, environmental concerns, nutrition and health education, social aspects of nutrition and wellness, nutrition and health activities for children, preventing accidents, wellness issues in the center, and nutrition, health and safety programs in the community.

Prerequisite(s): ECE 117.

Offered: Fall.

**ECE 127 Computers in Primary and Early Childhood Education**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Integrating computers into primary and early childhood educational classrooms. Includes the effect of computers on young children's development, selecting software using evaluation systems, evaluating software with developmental scales, introducing children to computers, teaching strategies to integrate computers into the curriculum, utilizing computers to promote an anti-bias curriculum, selecting anti-bias software, communicating with parents, connecting with the community, and networking across the globe.

Prerequisite(s): ECE 117.

Offered: Spring.

**ECE 129 Infant and Toddler Education**

3 credit hours/ 3 periods (3 lec.)

Examination of effective teaching and guidance practices during infant and toddler years. Includes principles of sensory motor awareness, memory permanence, cognitive development, concept formation and problem solving. Students observe, investigate, plan, and demonstrate developmentally appropriate curriculum and guidance practices.

Prerequisite(s): ECE 117.

Offered: Spring.

**ECE 130 School-Age Child Care and Program Development**

3 credit hours/ 3 periods (3 lec.)

Examination of child care programs for school-age children, including before- and after-school care, full day and recreational programs. Encompasses activities, leadership program planning, discipline, safety, problem solving, ethics, standards, cultural awareness, special needs, partnership, resources, supervising staff, and marketing. Also includes a supervised field experience project.

Prerequisite(s): ECE 117.

Offered: Fall.

**ECE 190 Beginning Level Internship in Early Childhood Education**

4 credit hours/ 16 periods (1 lec., 15 lab)

Internship for students completing first year of Early Childhood Education program. Includes professional documentation of work in early education settings, promoting positive classroom relationships and self-discipline in children, using principles of learning and teaching, organizing space, materials, time, children's groups, and appropriate practices in early childhood settings. Recommended: Consent of instructor is required before enrolling in this course.

Offered: Fall.

**ECE 200 Foundations of Early Childhood Education**

3 credit hours/ 3 periods (3 lec.)

Survey of the historical and philosophical foundations of Early Childhood Education. Includes influential people in the history in early childhood education, current issues that impact the field particularly the role of private and public entities in the creation and funding of early childhood education, and review of all the local, state and national policies that impact young children.

Prerequisite(s): ECE 117, REA 112 or concurrent enrollment, and WRT 100.

Offered: Fall, Spring.

**ECE 211 Inclusion of Young Children with Special Needs**

3 credit hours/ 3 periods (3 lec.)

Overview of the exceptional learner (birth to age 8) who differs from the average or the norm. Includes historical perspectives in exceptional children, identification and referral, areas of exceptionality, and family, community, and state impact. Also includes field experience.

Prerequisite(s): ECE 117, REA 112 or concurrent enrollment, and WRT 100.

Information: This course replaces ECE 111. Either ECE 111 or ECE 211 will meet the graduation requirement.

Offered: Fall, Spring

**ECE 226 Teaching Techniques and Behavior Management**

3 credit hours/ 3 periods (3 lec.)

Introduction to theory and application of early childhood classroom planning, guidance techniques and classroom management. Includes observation techniques, understanding and guiding behavior, skills-streaming in early childhood, parents as partners in education, creating environments, evaluating for effectiveness, planning for play, physical and motor development, cognitive and language, social, emotional, and creative growth, and issues and trends in early childhood education. Also includes a 22-hour practicum.

Prerequisite(s): ECE 117, REA 112 or concurrent enrollment, and WRT 100.

Offered: Spring.

**ECE 228 The Young Child: Family, Culture, and Community**

3 credit hours/ 3 periods (3 lec.)

Examination and acquisition of competencies required by child care personnel in educating and caring for infants, toddlers, and preschoolers in early childhood programs. Includes observing and recording age-appropriate activities, discipline, problem-solving, health and safety, guiding language and action, special needs, cultural awareness. Includes a supervised field project.

Information: This course replaces ECE 128. Either ECE 128 or ECE 228 will meet the graduation requirement.

Offered: Fall.

**ECE 240 Assessment of Young Children**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Assessment techniques associated with the evaluation of young children. Includes historical foundations and contemporary issues, standards in early education field, observation skills and techniques, and assessment.

Prerequisite(s): REA 112.

Offered: Fall, Spring.

**ECE 242 Games and Activities for Children**

3 credit hours/ 3 periods (3 lec.)

Examination of effective teaching and guidance practices with children in games and sports activities. Includes an introduction to children and physical activity developing and planning a physical activity program, effective classroom management, teaching styles and methods (basics), legal liability and proper care of students, specific types of games and activities, evaluating the appropriateness of games, participation in various games and activities, variety of spontaneous and planned activities, environment, observation, practice teaching and guidance, fine motor activities, and special needs.

Offered: Spring.

**ECE 290 Advanced Level Internship in Early Childhood Education**

4 credit hours/ 16 periods (1 lec., 15 lab)

Internship designed for students completing second year of Early Childhood Education program. Includes enhancing professional documentation, promoting positive classroom relationships and self-discipline in children, principles of successful learning and teaching, designing an effective thematic unit plan, developing and implementing group projects, and appropriate practices in early childhood settings.

Recommendation: Consent of instructor before enrolling in this course.

Offered: Spring.

**ECE 291 Internship for Students Experience in Early Childhood Education**

4 credit hours/ 16 periods (1 lec., 15 lab)

Internship experience designed to support students currently working in an educational setting, in increasing their professional knowledge by observing, doing, inquiring, and reflecting on teaching and learning. Includes developing a personal view of teaching, education history and philosophy, current trends in education, legal and ethical issues in education, status of contemporary children, exploring classroom learning theory, establishing a successful classroom environment, teaching and lesson planning, teacher as educational leader, and collaborating with families, businesses, and the community.

Prerequisite(s): ECE 117.

Recommendation: Consent of instructor before enrolling in this course.

Offered: Fall, Spring.

**ECE 296 Independent Studies in Early Childhood Education**

3 credit hours/ 3 periods (3 lec.)

Student independently continue their development in Early Childhood Education under the guidance of a faculty member.

Prerequisite(s): ECE 117.

Information: May be taken two times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

## ECONOMICS

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### ECN 200 Basic Economic Principles

3 credit hours/ 3 periods (3 lec.)

Economic theory as applied to individual decision-making units (microeconomics) and as applied to the operation of the economy as a whole (macroeconomics). Includes economic decision making, economic systems, supply and demand model, price determination, elasticity, household income, business ownership, profit maximization, production functions and costs, competition and market structures. Also includes goals and problems of the macroeconomy, foundations of the macroeconomy, fiscal policy and budgets, money, the role of financial institutions and the Federal Reserve, money creation, monetary theory and policy.

Prerequisite(s): MAT 092.

Information: Not open to students who have taken or are taking ECN 201 or ECN 202.  
Offered: Fall, Spring, Summer.

### ECN 201 Microeconomic Principles

3 credit hours/ 3 periods (3 lec.)

Economic theory as applied to individual decision-making units. Includes economic decision making, economic systems, consumer demand, producer supply, price determination, elasticity, cost-benefit analysis, and utility and profit maximization. Also includes production functions and costs, competition and market structures, government in the market economy, labor markets, and income distribution.

Prerequisite(s): MAT 092.

Offered: Fall, Spring, Summer.

### ECN 202 Macroeconomic Principles

3 credit hours/ 3 periods (3 lec.)

Economic theory as applied to the operation of the economy as a whole. Includes economic decision making, economic systems, supply and demand model, goals and problems of the macroeconomy, foundations of the macroeconomy, fiscal policy and budgets, money, the role of financial institutions and the Federal Reserve. Also includes money creation, monetary theory and policy, and the assessment of goals, tools and policies of macroeconomics, and international trade.

Prerequisite(s): MAT 092.

Offered: Fall, Spring, Summer.

## EDUCATION

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### EDU 100 Principles of Bilingual Education

3 credit hours/ 3 periods (3 lec.)

Examination of basic principles of bilingual education. Includes philosophy, history, rationale, legislation and models.

Offered: May not be offered this year, check class schedule.

### EDU 101 Introduction to Bilingual Elementary Education

3 credit hours/ 3 periods (3 lec.)

Introduction to prospective teachers, to the personal, social, institutional, and instructional issues relevant to teaching in general and bilingual education in particular. Includes engagement in pre-professional activities including autobiographical reflections, reading, discussing, and responding to relevant professional literature, observing in a bilingual education classroom, and reflecting on class presentations and interviews of parents, teachers, administrators, resource personnel, and students.

Offered: Spring.

### EDU 103 Teaching Students with ADD/ADHD

1 credit hour/ 1 period (1 lec.)

Strategies for working with children with attention difficulties. Includes overview Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD), diagnostic procedures, most common treatments, laws pertaining to servicing ADD/ADHD, strategies for the classroom, and overview of resources and organizations.

Information: May be taken for Professional Development purposes.

Offered: Fall, Spring.

### EDU 106 Structured English Immersion Introduction

1 credit hour/ 1 period (1 lec.)

Introduction to Structured English Immersion (SEI) methods and evaluation for pre-service or in-service teachers and administrators. Includes an overview of English Language Learning (ELL) and Sheltered Instruction. Also includes curriculum adaptation, student assessment, development of SEI lesson plans, and legal, historical, and educational reasons for Structured English Immersion.

Information: Meets the Arizona Department of Education requirement for provisional SEI endorsement.

Offered: Fall, Spring, Summer.

### EDU 107 Conducting Readers' and Writers' Workshop in K-8 Classroom

1 credit hour/ 1 period (1 lec.)

Overview and strategies for conducting effective readers' and writers' workshops and conferences. Includes readers' and writers' workshop management strategies, design and implementation of effective mini-lesson, conferencing, and sharing session.

Information: May be taken for Professional Development purposes.

Offered: Spring.

### EDU 108 Music, Art, and Drama for School-Age Child Care

3 credit hours/ 3 periods (3 lec.)

Examination of principles, techniques, and resources for creating age-appropriate projects and activities in music, art and drama. Includes theory in fine arts, age-appropriate activities, exploring music and movement, exploring different cultures through art and crafts, drama productions, developing social skills, and parent and family involvement.

Information: Consent of instructor is required before enrolling in this course.

Offered: Spring.

### EDU 109 Language, Arts, Science, and Math for School-Age Child Care

3 credit hours/ 3 periods (3 lec.)

Synthesis of principles for development of age-appropriate multidisciplinary activities. Includes introduction to multidisciplinary activities, multidisciplinary activities in programs for children ages five to eight years and ages nine to thirteen years, resources, social skills, and age-appropriate service learning. Also includes the evaluation of commercially produced programs and software.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall.

### EDU 111 Comprehension Strategies for Struggling Adolescent Readers

1 credit hour/ 1 period (1 lec.)

Overview of the issues facing the struggling adolescent reader. Includes strategies and tools for supporting reading skills and comprehension development. Also includes profile and key issues faced by struggling readers, cuing systems used by competent readers, key reading strategies, and development of literacy comprehension.

Information: May be taken for Professional Development purposes.

Offered: Fall, Spring.

### EDU 116 All Sorts of Leaves: Teaching Science K-6

1 credit hour/ 1 period (1 lec.)

Overview and concepts relating to science and natural curiosity. Includes the hands on and minds on philosophy of science instruction. Includes the merits of group work in lessons that are developed with the teacher as coordinator and facilitator, and the students as explorers. Includes the incorporation of cross curriculum activities such as descriptive writing and field sketches that makes science a holistic discipline. Also includes the use of multiple disciplines to provide opportunities for assessments.

Information: May be taken for Professional Development purposes.

Offered: Fall.

### EDU 117 Completing the Circuit: Teaching Science K-6

1 credit hour/ 1 period (1 lec.)

Concepts, techniques, and skills that complete the circuit through an investigation into science lesson facilitation and assessment. Includes an exploration of classroom setting as it relates to teaching science, questioning strategies for instruction and assessment in student-centered learning, and the employment of comprehensive assessment methods for immediate and continuous feedback. Also includes student journal format, and usage is incorporated into a student-centered science lesson plan.

Information: May be taken for Professional Development purposes.

Offered: Spring.

### EDU 120A Methods and Strategies for Literacy Development K-2

1 credit hour/ 1 period (1 lec.)

Methods and strategies for quality instruction in the literacy development of young students. Includes thematic units, assessment, and motivational instructional techniques for literacy acquisition. Also includes word walls, phonograms, staying on topic, students as authors, environmental print, and creating independent learners within an instructional setting.

Information: May be taken for Professional Development purposes.

Offered: Fall.

### EDU 120B Classroom Management: Strategies Supporting Literacy Development K-2

1 credit hour/ 1 period (1 lec.)

Classroom management strategies supporting the literacy development of young students. Includes learning centers, daily routines, and motivational techniques used to support literacy acquisition. Also includes options for grouping students, reading/writing workshops, fostering students as leaders and independent learners within an instructional setting.

Information: May be taken for Professional Development purposes.

Offered: Fall.

**EDU 120C Emerging Readers and Writers, Kindergarten**

1 credit hour/ 1 period (1 lec.)

Methods and strategies in the literacy development of emergent readers and writers. Includes implementing literacy routines, methods to assist English Language Learners, and organizational elements in support of literacy acquisition. Also includes using oral language development as a bridge, writing journals, classroom themes, learning centers and/or work stations.

Information: May be taken for Professional Development purposes.

Offered: Fall.

**EDU 129 How to Write Competitive Grant Proposals**

1 credit hour/ 1 period (1 lec.)

Strategies to develop effective, competitive grant proposals. Includes identifying and qualifying funding sources, interpreting and utilizing the funding agency's solicitations, developing the proposal format, and writing the proposal narrative.

Information: May be taken for Professional Development purposes.

Offered: Spring.

**EDU 130 Legal Issues in Education**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Introduction to legal issues in an educational environment for students, teachers, and staff. Includes Affirmative Action (AA), Equal Employment Opportunity (EEO), Americans with Disabilities Act (ADA), and sexual harassment, legal concepts, the rights of students, staff, and teachers, identifying and defining situations, forms of discrimination, techniques to prevent discrimination and sexual harassment, strategies to increase awareness, confidentiality and Right-to-Know, and internal and external processes.

Information: May be taken for Professional Development purposes.

Offered: Fall.

**EDU 134 Survival Strategies for the Substitute Teacher**

1 credit hour/ 1 period (1 lec.)

Techniques to prepare substitute teachers for the tasks they face in elementary, middle school and high school classrooms. Includes classroom management, interpreting and implementing lesson plans, and district procedures and policies.

Information: May be taken for Professional Development purposes.

Offered: Fall.

**EDU 136 When Students Write: Encourage/Support Great Student Writing**

1 credit hour/ 1 period (1 lec.)

Explore crucial issues related to writing instruction. Includes building a writing community, teaching writing skills in context and using literature that supports writing. Also includes techniques to support and enhance the skill development for young writers at all levels.

Information: May be taken for Professional Development purposes.

Offered: Spring.

**EDU 137 Food for Thought: Teaching Nutrition Science**

1 credit hour/ 1 period (1 lec.)

Overview and investigation of student-centered learning integrated with science assessment methods in nutrition instruction for elementary school practitioners. Includes the classroom climate as a factor in science achievement. Also includes parents as partners in nutrition science education and community resources.

Information: May be taken for Professional Development purposes.

Offered: May not be offered this year, check class schedule.

**EDU 138 Stress Management for Teachers**

1 credit hour/ 1 period (1 lec.)

Overview of teacher stress, its causes, its effects, and interventions. Contents include: theories of stress, recognizing personal stress, stress and brain functioning, work related sources of stress, and a variety of stress management techniques.

Information: May be taken for Professional Development purposes.

Offered: Spring.

**EDU 161 The Arizona Community College: A Learning Institution**

3 credit hours/ 3 periods (3 lec.)

Introduction to the community college system. Includes history, mission, governance, organization, finance, curriculum, and current challenges. Also includes student characteristics, support services, faculty characteristics, roles, responsibilities and evaluation, and an introduction to teaching, learning and assessment in the community college.

Information: Meets Pima Community College teaching requirement.

Offered: Fall, Spring, Summer.

**EDU 161C Teaching and Learning in the Community College**

1 credit hour/ 1 period (1 lec.)

An introduction to teaching, learning, and assessment of students and student learning outcomes as currently practiced in community colleges.

Information: May meet Pima Community College teaching requirement under certain circumstances.

Offered: Fall, Spring, Summer.

**EDU 173 Teaching and Learning Styles**

.25-1 credit hour/ .25-1 periods (.25-1 lec.)

Introduction to the ways teachers present and learners process learning or instructional materials. Includes overview and perspective of learning styles, major theories, applications to instruction, assessment of individual teaching and learning styles.

Information: May be taken for Professional Development purposes.

Offered: Spring.

**EDU 177 Motivating Students**

.25-1 credit hour/ .25-1 periods (.25-1 lec.)

Motivating students to learn. Includes theoretical background, motivating factors and strategies, intrinsic and extrinsic theories, classroom factors, behaviors associated with high motivation, affective factors in classroom climate, and practical suggestions for motivating students.

Information: May be taken for Professional Development purposes.

Offered: Fall.

**EDU 200 Introduction to Education**

3 credit hours/ 3 periods (3 lec.)

Provides students with an initial perspective of Education. Topics include: purposes of schooling and schools; effective schools; diversity and its effects on schools, teachers, and students; social problems affecting schools; comparative education; curriculum issues and controversies; and technology's impact on schools and schooling. Also, philosophical, legal, and financial issues facing today's schools; history of American education; and current trends in education reform.

Information: This class requires 30 hours of classroom experiential involvement in local schools. May be taken for Professional Development purposes.

Offered: Fall, Spring, Summer.

**EDU 201 Diversity in Education**

3 credit hours/ 3 periods (3 lec.)

Examination of diversity: age, class, gender, race disabilities, sexual orientation, and culture effect on the K-12 classroom. Exploration of diversity on education; demographic changes and effects on education; diversity and multicultural philosophies and perspectives and approaches for helping students communicate. Also, analysis of prejudice, single-group studies, multicultural education, human relations and capital. Explores children's school achievement in light of learning and teaching styles and reconstructionist approach to classroom diversity and curriculum planning.

Information: May be taken for Professional Development purposes.

Offered: Fall, Spring, Summer.

**EDU 202 Introduction to the Exceptional Learner**

3 credit hours/ 3 periods (3 lec.)

Special education foundation topics including current educational practices and related educational theories: Instructional, classroom management and assessment. Cultural consideration within K-12 special education; student transitioning within the school and between school and the community. Also, role and function of the special education teacher preparing for instruction, lesson plans, assessment, instruction, technology, and compliance.

Information: May be taken for Professional Development purposes.

Offered: Fall, Spring

**EDU 206 Relationships in Classroom Settings**

3 credit hours/ 3 periods (3 lec.)

Introduction to basic classroom management principles including the management of curriculum, instruction, physical environment, psychosocial factors, student motivation and special groups. Also includes a focus on disruptive behavior, family involvement, communication, stress management, and appropriate record keeping.

Information: May be taken for Professional Development purposes.

Offered: Fall, Spring.

**EDU 210 Visual Aids and Games for Effective Instruction**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Creating and using visual aids and games for effective instruction for K-12 teachers. Includes philosophy of teaching using games and creative arts, education plans in selected subject areas, manufactured materials and games that enhance teaching, methods of instruction with games and visual, and program management.

Information: May be taken for Professional Development purposes.

Offered: Spring.

**EDU 211 Meeting the Needs of Gifted Students**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Introduction to the methods and strategies required when teaching and working with gifted students. Includes all aspects of identification, and classroom placement, acceleration, independent study, problem-solving, and participation in academic competitions.

Information: May be taken for Professional Development purposes.

Offered: Fall.



**EDU 223 Motivate Writing in the Classroom**

1 credit hour/ 1 period (1 lec.)

Activities to motivate writing for the K-12 classroom. Includes overview, pre-writes and fast writes, games to motivate students, general activities using the newspaper, celebrating the completed project, teacher-to-teacher networking activities, and feedback and resources available.

Information: May be taken for Professional Development purposes.

Offered: Spring.

**EDU 224 Brain Research and Implications for Learning**

.25-3 credit hours/ .25-3 periods (.25-3 lec.)

Strategies to enhance learning through brain research. Includes brain functioning environments for optimum learning, role of emotions in learning, how the brain functions best, and mind and brain principals.

Information: May be taken for Professional Development purposes.

Offered: Fall.

**EDU 229 Six Traits-Six Points Rubric**

.25-3 credit hours/ .25-3 periods (.25-3 lec.)

Introduction to the newly adopted Arizona six point-six traits rubric. Includes lesson ideas to use with students to teach and practice each of the six traits, as well as an opportunity to score several papers using the rubric.

Information: May be taken for Professional Development purposes.

Offered: Fall.

**EDU 236 Positive Classroom Management**

1 credit hour/ 1 period (1 lec.)

Techniques to implementing a positive classroom environment. Includes philosophy, management theories, models of management, and the process to develop a positive style.

Information: May be taken for Professional Development purposes.

Offered: Fall, Spring.

**EDU 240 Adolescent Development**

3 credit hours/ 3 periods (3 lec.)

Examination of early to young adult adolescent development; investigation of developmental theories and methods; and comprehensive analysis of problems encountered by today's youth. Topic focus includes the physical, cognitive, moral and personality development; familial and peer relations, dating and sexuality, psychosocial problems: teen suicide, delinquency, and substance abuse. Also, includes ethnic and cultural considerations in addition to educational and vocational issues.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets Middle School Endorsement and Coaching Certificate requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Fall.

**EDU 241 Middle School Curriculum and Instruction**

3 credit hours/ 3 periods (3 lec.)

Concepts, skills and research techniques for middle school teachers. Examination of constructivism, research, curriculum development and instruction, unit planning, assessment and evaluation, materials selection, teaching strategies, diversity, motivation and classroom management.

Information: Education department approval is required before enrolling in this course. This class requires a 10 hour practicum. Meets Middle School Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Fall.

**EDU 242 Middle School Practicum**

3 credit hours/ 3 periods (3 lec.)

Strategies and tools for middle school teaching; subject matter instruction methods; adolescent development and learning; diversity of learners and instruction; creating a positive learning environment; instruction planning and implementation; assessment; professionalism; and personal reflection.

Information: Course requires a 30-hour middle school practicum placement and 15 hours of workshop/lecture. Meets Middle School Endorsement requirements in conjunction with other coursework. Education department approval is required before enrolling in this course. May be taken for Professional Development purposes.

Offered: Spring.

**EDU 243 ESL Practicum**

3 credit hours/ 3 periods (3 lec.)

Concepts, techniques, and on-site experience working with English Language Learners (ELL). Requires observations of ELL's in a variety of settings, evaluation of English as a techniques and actual experience in developing lessons and Second Language (ESL) and Sheltered English Instruction, teaching techniques and experience in developing lessons and teaching ELL.

Information: Education department approval is required before enrolling in this course. This class requires a 30-hour ESL K-12 practicum and 15-hours of workshop and lecture. Meets Middle School Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Fall.

**EDU 244 Teaching Reading and Writing to ESL Students**

3 credit hours/ 3 periods (3 lec.)

Introduction to teaching reading and writing in English as a Second Language (ESL) setting. Includes teaching techniques, learning strategies and activities, the six traits of writing, including reading and writing across the curriculum.

Information: Education department approval is required before enrolling in this course. This course requires a 10-hour practicum. Meets ESL Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Spring.

**EDU 245 Linguistics**

3 credit hours/ 3 periods (3 lec.)

Introduction to the nature, structure, and acquisition of language. Includes basic concepts of phonetics, phonology, morphology, syntax, semantics, psycholinguistics, language variation, and theories of first and second language acquisition.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets ESL Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Spring.

**EDU 246 Assessment of ESL Students**

3 credit hours/ 3 periods (3 lec.)

Introduction to the assessment of ESL students: knowledge of assessment, purposes of assessment, identification, placement, and exit standards for students, linking assessment to instruction, and creating classroom assessments.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets ESL Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Fall.

**EDU 247 Family & Community Involvement in ESL Student Instruction**

3 credit hours/ 3 periods (3 lec.)

Introduction to parental, school and community involvement in the instruction of ESL students. Also, includes research on the value of family/school connections, an overview of effective programs, analysis of practices and resources available and information on how develop a plan of action for a school.

Information: Education department approval is required before enrolling in this course. This course requires a 10-hour practicum. Meets ESL Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Fall.

**EDU 252 Reading Diagnosis, Decoding, Remediation and Practicum**

3 credit hours/ 3 periods (3 lec.)

Fundamentals of diagnosis, decoding, and remediation of reading problems. Includes instruction techniques on administering, analyzing, and interpreting informal procedures and using the results to plan a program of remediation.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets Reading Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Fall.

**EDU 254 Literacy Development in the Primary Grades/Practicum**

3 credit hours/ 3 periods (3 lec.)

Philosophy, information and strategies for literacy development in the primary classrooms. Topics include: literacy and language development theories; observation and assessment; family literacy; strategies for teaching and motivation and management.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets Reading Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Spring.

**EDU 255 Content Area Reading Middle and Secondary Schools/Practicum**

3 credit hours/ 3 periods (3 lec.)

Information and strategies in content area literacy and its fundamental role in instruction across the curriculum. Overview of content area literacy; active learning in the reading and writing process; comprehension, vocabulary, and study skill strategies; the role of literature in the content areas; writing as a tool for content area comprehension; assessment strategies and technology.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets Reading Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Spring.



**EDU 256 Literacy Development in the Middle School/Practicum**

3 credit hours/ 3 periods (3 lec.)

Research and information strategies related to teaching reading and language arts at the middle school level. Topics include: reading research; reading strategies; work with and supporting struggling readers; motivation; readers' workshop; assessment; age-appropriate materials selection; and development and implementation of strategic reading groups.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets Reading Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Spring.

**EDU 257 Special Topics: Children's Literature and Literacy/Practicum**

3 credit hours/ 3 periods (3 lec.)

Strategies for using children's literature to support literacy development. Topics include: literature selection criteria, genre, response strategies, literature assessment, elements and styles of literature and poetry, ethnic and gender issues in children's literature, thematic unit building, response assessment, using children's literature to teach writing, and benefits of literature and response in the classroom.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets Reading Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: Spring.

**EDU 260 Developing Reading, Instruction, Assessment, and Remediation**

3 credit hours/ 3 periods (3 lec.)

Concepts, techniques and skills to teach struggling readers. Includes the components of reading. Includes the application of concepts to conduct assessments, instructional and remedial activities for struggling readers. Includes how to participate in the Individualized Education Program (IEP) process to help develop long-range individualized instructional plans and create short-range goals and objectives considering an individual student's abilities, needs and learning environment.

Information: Same as EDS 260. Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. This class requires a 15-hour practicum.

Offered: Fall.

**EDU 261 Introduction to Rehabilitation Services**

3 credit hours/ 3 periods (3 lec.)

Introduction to disability and rehabilitation services. Includes issues faced by persons experiencing disability, the rehabilitation delivery system, vocational rehabilitation outcomes, interpersonal communication skills consumer involvement and self management, and ethics and professionalism. Also includes issues on environmental barriers and solutions.

Information: Same as SSE 261.

Offered: May not be offered this year, check class schedule.

**EDU 262 Assistive Technology for Individuals with Disabilities**

3 credit hours/ 3 periods (3 lec.)

Study of assistive technology devices, products and applications techniques. Includes overview of assistive technology, special adaptive needs, basic computer skills, assessment practices and ethical consideration. Assistive equipment, positioning and seating technology, programming processor controlled augmentative communication devices, accessibility of environment, using software applications, adapting activities to available equipment, adapting computers to specific needs, using the internet as a resources guide, evaluating equipment, and developing/adapting low-and-mid-tech devices to meet specific needs.

Information: Same as SSE 262.

Offered: May not be offered this year, check class schedule.

**EDU 268 Issues in Education**

1 credit hour/ 1 period (1 lec.)

Special topics in education with an emphasis on current issues. Includes issues and concepts relating to the National Board for Professional Teaching, standards, and future teaching practices. Also includes student learning, personal motivation, lesson plan development, behavior and ethics, and professional portfolio.

Information: Admission to the Post-Degree Teacher Certification Program or Education Department approval is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**EDU 269 Balanced Approach to Literacy/Practicum**

3 credit hours/ 3 periods (3 lec.)

Introduction to literacy development for pre-service teachers for pre-kindergarten through middle school children. Includes pre-kindergarten through third grade teachers; learning environments, assessment, selection and use of text, strategies and high quality classroom instruction. Includes fourth through eighth grade teachers independent reading, guided reading, and classroom instruction.

Information: Education department approval is required before enrolling in this course. This class requires a 10-hour practicum. Meets Reading Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.

Offered: May not be offered this year, check class schedule.

**EDU 270 Educational Technology and Curriculum Integration**

3 credit hours/ 3 periods (3 lec.)

Introduction to topics and issues in educational technology. Includes electronic communications, basic productivity applications, computer system basics, multimedia and educational courseware and technology integration into the curriculum. Also includes planning for and evaluating educational technology, security, ethics and other issues in technology, and emerging technologies in education.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio.

Offered: Fall, Spring, Summer.

**EDU 271 Introduction to Teaching**

3 credit hours/ 3 periods (3 lec.)

Introduction to teaching for the prospective teacher focusing on the major models of teaching, the purposes served and the curricular methods employed with each model. Includes social modes of teaching and learning, information processing models, personal models, behavioral models, synthesizing and applying models of teaching, lessons and assessments using various models, teaching as a profession, and methods for increasing instructional effectiveness.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio.

Offered: Fall, Spring, Summer.

**EDU 272 Educational Psychology**

3 credit hours/ 3 periods (3 lec.)

Introduction to the basic principles of educational psychology relating to the areas of physical, psychological, moral, social and cognitive development. Includes personal and social development, cognitive processes in the classroom, behaviorism, constructivism, learning theorists, and assessment.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio.

Offered: Fall, Spring, Summer.

**EDU 273 Introduction to Special Education**

3 credit hours/ 3 periods (3 lec.)

Introduction to a variety of instructional, classroom management and assessment strategies pertinent to teaching in a special education program. Includes role and function of the special education teacher, preparing for instruction, constructing lesson plans, assessment, instruction, classroom management, instructional media learning tools, and special education compliance.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. This course requires a 10-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Fall, Spring, Summer.

**EDU 274 Structured English Immersion Foundations**

3 credit hours/ 3 periods (3 lec.)

Overview of Structured English Immersion (SEI) Foundations. Includes concepts designed to meet state standards for teachers of English Language Learners (ELLs). Also includes instruction in SEI strategies, teaching with Arizona English Language Learner (ELL) Proficiency Standards and monitoring ELL student progress using a variety of assessment tools. Prerequisite(s): Admission to the Advanced Certificate Program in Teacher Education or Department Approval.

Information: This course requires a 10-hour practicum. Meets ESL Endorsement requirements in conjunction with other coursework. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Fall, Spring, Summer.

**EDU 275 Classroom Management**

3 credit hours/ 3 periods (3 lec.)

Introduction to assisting students to master the knowledge and skills necessary to create and maintain a positive classroom environment. Includes overview of classroom management, students' basic needs, creating positive interpersonal relationships, creating positive peer relationships, working with parents and student motivation and learning. Also includes developing standards for classroom behavior, responding to violations of rules and procedures, using problem solving techniques, developing individual behavior plans, and school-wide student management programs.

Information: Admission to the Post-Degree Teacher Certification Program or Education Department is required before enrolling in this course. This course requires a 10-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Fall, Spring, Summer.

**EDU 276 Foundation of Reading Instruction**

3 credit hours/ 3 periods (3 lec.)

Literacy instruction at the elementary school level. Topics include: literacy development theory; literacy development at the preschool, early childhood and intermediate grade level; instruction techniques for all facets of literacy development; comprehension strategies including bilingual learners and special population. Focus is on organizing classroom and curriculum to enhance literacy development and techniques and assessment as tools for instruction and working with parents to enhanced students achievement.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. This class requires a 15-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Fall.

**EDU 277 Phonics Instruction in a Balanced Literacy Setting/Practicum**

3 credit hours/ 3 periods (3 lec.)

Overview and exploration to phonemic awareness, phonics instruction and related research findings. Includes quality literacy programming, understanding language and words, word study, learning about letters and words, and thinking comprehensively.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. This class requires a 15-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Fall, Spring.

**EDU 278 Elementary Science Methods and Curriculum Development**

3 credit hours/ 3 periods (3 lec.)

Overview of the content and instructional methods of teaching science in grades kindergarten through eighth. Includes the academic content of teaching science, the instructional methods of teaching science, practical application, and observation and evaluation.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. This course requires a 15-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Fall.

**EDU 279 Elementary Math Methods and Curriculum Development**

3 credit hours/ 3 periods (3 lec.)

Introduction to the content and methods of curriculum development in elementary math for the elementary and middle school teacher. Includes standards, resources, teaching math concepts, cooperative learning, topics, teaching aids, activity lessons, integrating mathematics lessons with other disciplines, and presenting a lesson.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. This course requires a 15-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Spring.

**EDU 280 Social Studies Methods and Curriculum Development**

3 credit hours/ 3 periods (3 lec.)

Overview of the content and methodology of teaching social studies in kindergarten through eighth grade. Includes the social studies academic content, methods of teaching social studies instruction, and evaluation.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. This course requires a 15-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Spring.

**EDU 281 Structured English Immersion Methods**

3 credit hours/ 3 periods (3 lec.)

Introduction to Structured English Immersion (SEI) methods designed to meet state standards for pre-service and in-service teachers of English Language Learners (ELL). Includes an examination of ELL proficiency standards, assessment of ELLs, SEI foundations and strategies, using disaggregated data to differentiate instruction and parental involvement. Also includes a practicum and TaskStream portfolio.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course. This course includes a 15-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Meets ESL Endorsement requirements in conjunction with other coursework.

Offered: Fall, Spring.

**EDU 285 Secondary Teaching Methods**

3 credit hours/ 3 periods (3 lec.)

Introduction to variety of instructional, classroom management and assessment strategies pertinent to teaching in the secondary schools. Includes the role and function of the teacher in a secondary classroom setting, preparing for instruction, constructing lesson plans, assessment, instruction, classroom management, instructional media learning tools, and special needs students.

Information: Admission to the Post-Degree Teacher Certification Program or

Education department is required before enrolling in this course. This course requires a 15-hour practicum. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.

Offered: Fall, Spring.

**EDU 286 Structured English Immersion Methods for Certified Teachers**

3 credit hours/ 3 periods (3 lec.)

Introduction to Structured English Immersion (SEI) methods designed to meet state standards for pre-service and in-service teachers of English Language Learners (ELL). Includes an examination of ELL proficiency standards, assessment of ELLs, SEI foundations and strategies, using disaggregated data to differentiate instruction and parental involvement.

Information: This course is designed for currently practicing K-12 teachers and administrators. Meets ESL Endorsement and SEI Endorsement requirements in conjunction with other coursework. Also meets Arizona Department of Education course requirements.

Offered: Fall, Spring.

**EDU 290 Internship**

8-9 credit hours/ 40-50 periods (40-50 lab)

Overview of the student teaching experience in a nine week internship. Includes initial discussion, observation, assessing the learning environments, evaluating educational resources, long and short-term planning, mid-term evaluation, curriculum development and implementation and accommodation to individual needs. Also includes assessments, parent and community collaboration, portfolio completion, teamwork, and professional development and evaluation.

Information: Admission to the Post-Degree Teacher Certification Program or Education department is required before enrolling in this course.

Offered: Fall, Spring.

**EDU 290A Internship I**

2 credit hours/ 10 periods (10 lab)

Overview of the student testing experience, Teacher Preparation Program (TPP) Internship. Includes initial discussion, observation, assessing the learning environments, evaluating educational resources, long and short-term planning, mid-term evaluation, curriculum development and implementation and accommodation to individual needs. Also includes assessments, parent and community collaboration, portfolio completion, teamwork, and professional development and evaluation.

Information: This course requires admission to the Post Degree Teacher Certification Program and TPP Internship and Education department approval before enrolling in this course. EDU 290A, 290B, 290C and 290D together constitute EDU 290.

Offered: May not be offered this year, check class schedule.

**EDU 290B Internship II**

2 credit hours/ 10 periods (10 lab)

Continuation of EDU 290A, Teacher Preparation Program (TPP) Internship. Includes initial discussion, observation, assessing the learning environments, evaluating educational resources, long and short-term planning, mid-term evaluation, curriculum development and implementation and accommodation to individual needs. Includes assessments, parent and community collaboration, portfolio completion, teamwork and professional development and evaluation.

Information: This course requires admission to the Post Degree Teacher Certification Program and TPP Internship and Education department approval prior to registration. EDU 290A, 290B, 290C and 290D together constitute EDU290.

Offered: May not be offered this year, check class schedule.

**EDU 290C Internship III**

2 credit hours/ 10 periods (10 lab)

Continuation of EDU 290B, Teacher Preparation Program (TPP) Internship. Includes initial discussion, observation, assessing the learning environments, evaluating educational resources, long and short-term planning, mid-term evaluation, curriculum development and implementation and accommodation to individual needs. Also includes assessments, parent and community collaboration, portfolio completion, teamwork, and professional development and evaluation.

Information: This course requires admission to the Post Degree Teacher Certification Program and TPP Internship and Education department approval prior to registration. EDU 290A, 290B, 290C and 290D together constitute EDU 290.

Offered: May not be offered this year, check class schedule.

**EDU 290D Internship IV**

2-3 credit hours/ 10-15 periods (10-15 lab)

Continuation of EDU 290C, Teacher Preparation Program (TPP) Internship. Includes initial discussion, observation, assessing the learning environments, evaluating educational resources, long and short-term planning, mid-term evaluation, curriculum development and implementation and accommodation to individual needs. Also includes assessments, parent and community collaboration, portfolio completion, teamwork, and professional development and evaluation.

Information: This course requires admission to the Post Degree Teacher Certification Program and TPP Internship and Education department approval prior to registration. EDU 290A, 290B, 290C, and 290D together constitute EDU 290.

Offered: May not be offered this year, check class schedule.



## EDUCATION, SPECIAL EDUCATION

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### EDS 250 Issues in Special Education

1 credit hour/ 1 period (1 lec.)

Overview of issues presented in public schools when special education services are provided to students with disabilities. Includes perspectives which challenge and support the delivery of services and examination of their consequences.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Summer.

### EDS 251 Legal Issues in Special Education

1 credit hour/ 1 period (1 lec.)

An introduction to legal issues in special education. Includes the history of special education law, Section 504 of the Rehabilitation Act, Americans with Disabilities Act, and the purpose, principles and amendments to the Individuals with Disabilities Education Act (IDEA) and its re-authorizations, application of free and appropriate public education to students with disabilities, least restrictive environment mandates. Also includes disciplinary procedures, transition plans, and key themes in legal regulations regarding the disabled.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Summer.

### EDS 252 Understanding Individuals with Disabilities Education Act

1 credit hour/ 1 period (1 lec.)

Overview and examination of the Individuals with Disabilities Education Act, 2004, which mandates students with disabilities be provided a free, appropriate public education. Includes an emphasis on the process of eligibility. Also includes the delivery of services to school age children.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Summer.

### EDS 253 Development and Implementation of IEPs

1 credit hour/ 1 period (1 lec.)

Overview and examination of an Individualized Education Program (IEP) required components. Includes how IEPs are developed for and utilized in the classroom. The roles and responsibilities of required members of IEP team will be reviewed and analyzed in relation to students, family members, and teachers. Includes an emphasis on the cycle of creating, reviewing and revising an IEP to reflect the needs of students.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Summer.

### EDS 254 Classroom Management for Special Education

2 credit hours/ 2 periods (2 lec.)

Overview of skills, methods and strategies for behavior management. Includes a foundation on how to recognize, evaluate, and respond to classroom situations. Also includes how to develop classroom management skills with educators, parents and students, as well as develop a behavior management plan for special needs students.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. This class requires a 10-hour special education practicum. Offered: Fall.

### EDS 255 Assistive Technology for Special Education Teachers

3 credit hours/ 3 periods (3 lec.)

An overview of the assistive technology devices and services that can assist a person with a disability to overcome the functional limitations of the disability. Includes the continuum of assistive technology devices, instructional designs for learning, curriculum adaptation and integration strategies, and assessment and evaluation protocols. Also includes how to make better choices about technology and individual needs.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Spring.

### EDS 256 Survey of Special Education

3 credit hours/ 3 periods (3 lec.)

Overview of special education foundations and issues. Includes special education issues: mental retardation, learning disabilities, Attention Deficit Hyperactivity Disorder (ADHD), emotional and behavioral disorders, gifted and talented, speech and language disorders, hearing and visual impairments,

autism, and physical, health, and traumatic brain injuries. Also includes special education history, legislation, family effects, diversity, and educational considerations.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. This class requires a 10-hour special education practicum.

Offered: Fall.

### EDS 257 Diagnosis Assessment of Students with Mild-Moderate Disabilities

3 credit hours/ 3 periods (3 lec.)

Concepts, skills, and techniques to diagnose and assess students with learning and mild-moderate disabilities. Includes how to develop screening, pre-referral, eligibility, and placement for individuals with exceptional learning needs skills. Includes an emphasis on informal assessment for instruction and on the introduction of formal assessment for special education eligibility. Also includes synthesizing, developing and writing a comprehensive report.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Spring.

### EDS 258 Foundations of Instruction - Designated Disability

1 credit hour/ 1 period (1 lec.)

Foundations of instruction for designated disabilities, such as emotional and behavioral disabilities, and cross-categorical disabilities. Includes assessment, instruction, and instructional design; establishment and maintenance of case; use of assessment data to design goals and objectives; development of Individualized Education Plans (IEPs); communication and consultation with teachers, families, students, administrators, and agencies; directing and monitoring activities of Paraprofessionals, aids, volunteers, and peer tutors; and modify curriculum and instruction to accommodate student needs. Also includes a major writing project with a focus on designated disabilities.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Spring.

### EDS 259 Teaching Methods Cross-Categorical

3 credit hours/ 3 periods (3 lec.)

Overview of how to educate special needs students while meeting their needs academically and socially. Includes methods of teaching students in the Special Education classroom, general education classroom; methods of collaboration with general education teachers and parents; and setting up your classroom for classroom management success. Also includes how to construct and carry out an effective lesson plan and develop an IEP.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. This class requires a 15-hour special education practicum. Offered: Fall.

### EDS 260 Developing Reading, Instruction, Assessment, and Remediation

3 credit hours/ 3 periods (3 lec.)

Concepts, techniques and skills to teach struggling readers. Includes the components of reading. Includes the application of concepts to conduct assessments, instructional and remedial activities for struggling readers. Includes how to participate in the Individualized Education Program (IEP) process to help develop long-range individualized instructional plans and create short-range goals and objectives considering an individual student's abilities, needs and learning environment.

Information: Same as EDU 260. Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. This class requires a 15-hour special education practicum. Offered: Fall.

### EDS 261 Learning Disabilities

3 credit hours/ 3 periods (3 lec.)

Foundations in the field of learning disabilities (LD) and related disabilities. Includes the characteristics of learners, team collaboration, and current legislation. Includes assessments for diagnosis, placement, and instruction. Includes specific remedial techniques for teaching reading, writing, and math to students with LD and Attention Deficit Hyperactivity Disorder (ADHD).

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. This class requires a 15-hour special education practicum. Offered: Fall.

### EDS 262 Home, School, and Community Relations

1 credit hour/ 1 period (1 lec.)

Concepts and techniques for home and community relations for educators in special education. Includes the rationale for collaborative skills and strategies for effective home, school and community relations. Also includes communica-

tion skills necessary for successful educational collaboration and coordination, and collaboration strategies for teachers, specialists, and families to facilitate learning for at-risk and special education students.

Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Offered: Fall.

### **EDS 263 Special Education: Cross Category AEPA Prep**

1 credit hour/ 1 period (1 lec.)

Overview, concepts, and techniques to prepare for the Arizona Educator's Proficiency Assessment (AEPA) test in the area of Special Education-Cross Category specialty. Includes the types and characteristics of a variety of disabilities, assessing special needs students and developing Individual Educational Plans (IEPs), promoting student development and learning, and working collaboratively in a learning community.

Offered: Fall, Spring, Summer.

### **EDS 264 Special Education: Learning Disabilities AEPA Prep**

1 credit hour/ 1 period (1 lec.)

Overview, concepts, and techniques to prepare for the Arizona Educator's Proficiency Assessment (AEPA) test in the area of Special Education-Learning Disabilities specialty. Includes the following topics: types and characteristics of a variety of learning disabilities; assessing special needs students and developing Individual Educational Plans (IEPs); promoting student development and learning; and working collaboratively in a learning community.

Offered: Fall, Spring, Summer.

## **EDUCATIONAL TECHNOLOGY TRAINING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **ETT 101 Introduction to Educational Technology**

3 credit hours/ 3 periods (3 lec.)

An introduction to educational technology exploring the current and emerging technologies available to teachers. Includes theoretical foundations of educational technology, technology enhanced instruction, digital technologies for the classroom, and an overview of productivity, school and classroom management software.

Offered: Fall, Spring.

### **ETT 102 Introduction to Computer Applications in Education**

3 credit hours/ 3 periods (3 lec.)

Basic use of computer applications for educators. Includes files, folders, hard drive, floppy discs, software, issues related to the use of technology and multimedia in the classroom. Also includes use of word processing, spreadsheet, database and presentation programs, integrated office products (e-mail, calendar, task list), and quiz and gradebook programs in an educational setting.

Offered: May not be offered this year, check class schedule.

### **ETT 103 Introduction to the Internet in Education**

3 credit hours/ 3 periods (3 lec.)

Basic use of the internet for education. Includes network and telecommunication systems, web-based applications for teaching and learning, and audio-visual technologies. Also includes an introduction to distance education and issues in implementing internet technologies in schools.

Offered: Spring.

### **ETT 104 Teaching and Learning With Computer Applications**

3 credit hours/ 3 periods (3 lec.)

Introduction to software skills for educators. Includes learning materials using computer software applications, teaching and learning integration with computer applications, multimedia presentations with productivity tools, templates, forms and educational technology issues in an educational setting.

Offered: May not be offered this year, check class schedule.

### **ETT 105 Teaching and Learning with the Internet**

3 credit hours/ 3 periods (3 lec.)

An overview of advanced Web/Internet searching and indexing strategies for educators. Includes finding instructional resources, Internet communications of Web browsers, evaluating resources, Internet/Web integration, educational issues, constructing Web pages, new technology issues and trends, Web pages and files on a Web server, educational technology issues and best practices in technology in an educational setting.

Offered: May not be offered this year, check class schedule.

### **ETT 106 Teaching and Learning with Multimedia**

4 credit hours/ 4 periods (4 lec.)

Introduction to the theory and practical application of instructional multimedia, multimedia design and production for educators. Includes multimedia elements, commercially produced technology-based programs, authoring, delivery

systems, production and publishing, evaluation, rubrics and educational technology issues in an educational setting.

Offered: May not be offered this year, check class schedule.

### **ETT 107 Educational Technology Topics and Issues**

2-4 credit hours/ 2-4 periods (2-4 lec.)

Overview of special educational technology topics of interest to the educator. Includes video-based instruction, new educational technologies, advanced Web/Internet use, video creation and editing, technology usage and effectiveness, adaptive technology tools, tools for developmental education and commercially produced technology based programs in an educational setting.

Offered: May not be offered this year, check class schedule.

### **ETT 108 Educational Technology and Assessment**

3 credit hours/ 3 periods (3 lec.)

Overview of computer based systems in education to evaluate learning. Includes assessment of learning and technology, evaluation of instructional materials and resources and educational technology issues in an educational setting.

Offered: May not be offered this year, check class schedule.

### **ETT 109 Curriculum Integration with Technology**

3 credit hours/ 3 periods (3 lec.)

An overview for the educator of the use of technology to support all areas of the academic curriculum. Includes integration of technology into the curriculum, development of an integration lesson plan, tools to create curriculum ideas, writing and basic skills acquisition, enhancing problem solving and critical thinking, developing thematic lesson plans across disciplines, educational technology issues and the use of technology in an educational setting.

Offered: May not be offered this year, check class schedule.

### **ETT 110 WebCT Course Development and Delivery**

3 credit hours/ 3 periods (3 lec.)

Overview, concepts, and techniques for online course preparation, delivery, and management using WebCT. Includes advanced web and Internet use, online course development, educational web site development, and use of WebCT, an online course development and management system.

Information: ETT 101, 102, and 103 or equivalent computer knowledge and experience required. Must be a Pima Community College (PCC) faculty (full-time or adjunct) or staff (full-time or part-time) or prospective faculty to register for this class. Frequent and reliable access to the Internet and Web is required.

Offered: May not be offered this year, check class schedule.

## **ELECTRICAL UTILITIES TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **EUT 101 Introduction to Electrical Utilities**

3 credit hours/ 3 periods (3 lec.)

Overview of the electrical utility field. Includes electricity generation, generating station, generation, transmission, and distribution, power policies and procedures, radio procedures, electrical utility disciplines, and system protection.

Offered: Fall.

### **EUT 102 Electrical Distribution Math**

3 credit hours/ 3 periods (3 lec.)

Basic math operations related to electrical distribution. Includes the review of basic math, solving and converting, basic algebra, and Ohm's Law.

Offered: Spring.

### **EUT 104 Overhead & Underground Systems, Hardware, & Equipment**

4 credit hours/ 5 periods (3 lec., 2 lab)

Procedures for working in the overhead and underground distribution components. Includes pole hardware, overhead conductors, porcelain and polymer equipment, overhead transformers, underground equipment installation, electrical utility disciplines, and safety.

Offered: Spring.

### **EUT 106 Measuring Electricity**

3 credit hours/ 4 periods (2 lec., 2 lab)

Overview of the theories and devices used to measure electricity. Includes electric utility metering terminology, Blondel's theorem, kilowatt-hour meter operating principles, single-phase and network meters, wiring connections for mounting devices, voltmeter, voltage indicator, and ammeter usage, and Direct Current (DC), and Alternating Current (AC), circuits.

Offered: Spring.



## EMERGENCY MEDICAL TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### EMT 100 Basic Emergency Medical Technology

9 credit hours/ 11 periods (8 lec., 3 lab)

Techniques of pre-hospital emergency medical care for the emergency medical technician. Includes symptoms of illnesses, injuries, medical emergencies, appropriate medical techniques and ambulance operations.

*Recommendation: Students must be able to lift 125 lbs alone and 250 lbs with a partner. Students must show proof of personal medical insurance. Students must meet with an advisor or EMT staff/faculty to complete a pre-enrollment worksheet before enrolling in this course.*

Information: Students must be 18 years of age when class begins. Students must have CPR certification at the Healthcare Provider or Professional Rescuer Level. Students must receive a minimum score of 80 on the Reading assessment test.

Offered: Fall, Spring, Summer.

### EMT 110 First Responder

3 credit hours/ 3 periods (3 lec.)

Techniques in pre-hospital emergency care appropriate to the First Responder Scope of Practice. Includes identifying signs and symptoms associated with illness and traumatic injuries. Also includes intervention used in managing patient and transfer of patient to higher level medical authority.

Offered: Fall, Spring.

### EMT 140 Pre-Hospital Trauma Life Support

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Concepts and techniques for evaluating assessment findings to formulate a field impression and implementation of a field treatment plan for a trauma patient. Includes systemic approach to patient assessment and management, airway and ventilation management, shock, soft tissue and burn injuries, isolated and multi-systems trauma, and various types of trauma patients.

Offered: Fall, Spring.

### EMT 141 Pre-Hospital Trauma Life Support Refresher

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Concepts and scenario-based techniques for evaluating assessment findings to formulate a field impression and implementation of a field treatment plan for a trauma patient. Includes a systemic approach to patient assessment and management, airway and ventilation management, shock, soft tissue and burn injuries, isolated and multi-systems trauma.

Information: Includes teaching and evaluation stations as a review and update for those students who have taken PHTLS.

Offered: Fall, Spring.

### EMT 158 Transition Training for EMT

1.5 credit hours/ 2.5 periods (1 lec., 1.5 lab)

Review of current techniques in pre-hospital emergency care for the basic emergency medical technician. Includes signs and symptoms of illness, injuries, medical emergencies, appropriate medical techniques, and ambulance operations.

Information: EMT-B State of Arizona current certification is required before enrolling in this course. May be taken six times for a maximum of nine credit hours.

Offered: Fall, Spring.

### EMT 158A Transition Training for EMT - A

.75 credit hours/ 1.25 periods (.5 lec., .75 lab)

Review of current techniques in pre-hospital emergency care for the basic emergency medical technician. Includes roles and responsibilities of the EMT, airway assessment and management techniques, evaluation of injuries and medical emergencies.

Information: EMT-B State of Arizona current certification is required before enrolling in this course. May be taken six times for a maximum of 4.5 credit hours.

Offered: May not be offered this year, check class schedule

### EMT 158B Transition Training for EMT - B

.75 credit hours/ 1.25 periods (.5 lec., .75 lab)

Review of current techniques in pre-hospital emergency care for the basic emergency medical technician. Includes intravenous therapy, blood glucose monitoring, principles of extrication, ambulance operations and triage.

Information: EMT-B State of Arizona current certification is required before enrolling in this course. May be taken six times for a maximum of 4.5 credit hours.

Offered: May not be offered this year, check class schedule.

### EMT 159 Cardiopulmonary Resuscitation: Healthcare Provider

.5 credit hours/ .75 periods (.25 lec., .5 lab)

Introduction to the techniques required to provide cardiopulmonary resuscitation at the Healthcare Provider Level. Includes introduction to body systems and disease states which lead to cardiac and respiratory arrest. Also includes the assessment and intervention for the airway, respiration and central circulation.

Information: Course meets American Heart Association guidelines for the Healthcare Provider level. May be taken six times for a maximum of three credit hours.

Offered: Fall, Spring.

### EMT 170 ALS Operations

1 credit hour/ 1 period (1 lec.)

Introduction to skills necessary to assess, extricate, and care for victims of crash incidents. Includes exposure to scene management skills to include size-up, disentanglement, victim stabilization for single and multi-victim situations, hazardous materials incidents, integration of local emergency medical services (EMS) for patient assessment and management, and standard operating procedures to selected victim scenarios.

Information: Acceptance into the ALS training program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### EMT 172 IV Access for EMT-Basic

1.25 credit hours/ 1.5 periods (1 lec., .5 lab)

Provides a review of the anatomy of the circulatory system. Includes peripheral intravenous cannulation techniques, fluid resuscitation, obtaining venous blood samples for laboratory analysis, infection control techniques for the safety of self and victim, and complications of intravenous cannulation.

Information: EMT-B State of Arizona current certification is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### EMT 180 EMT Review - Theory and Practice

6 credit hours/ 8 periods (4 lec., 4 lab)

Comprehensive review of the knowledge and skills required by certified emergency services professionals. Includes basic preparation, airway, patient assessment, medical emergencies, trauma, special populations, and operations. Also includes a variety of enrichment activities.

Information: Should be taken in conjunction with EMT 100.

Offered: May not be offered this year, check class schedule.

### EMT 180A EMT Review - Theory and Practice Module A

3 credit hours/ 4 periods (2 lec., 2 lab)

certified emergency services professionals. Includes basic preparation, airway, patient assessment, and medical emergencies, trauma, special populations, and operations. Also includes a variety of enrichment activities.

Information: Should be taken in conjunction with EMT 100.

Offered: Fall, Spring, Summer.

### EMT 180B EMT Review - Theory and Practice Module B

3 credit hours/ 4 periods (2 lec., 2 lab)

This course provides a comprehensive review of the knowledge and skills required by certified emergency services professionals. Includes trauma, special populations, and operations. Also includes a variety of enrichment activities.

Information: Should be taken in conjunction with EMT 100.

Offered: Fall, Spring.

### EMT 205 ALS Pharmacology and Medication Administration

3 credit hours/ 3.25 periods (2.75 lec., .5 lab)

Elements of pharmacological agents and their administration. Includes basic pharmacological background and actions of drugs, regulations, human body systems, and pharmacokinetics. Also includes medications for patient in an emergency setting, and pharmacological mathematics.

Information: Acceptance into an ALS training program is required before enrolling.

Offered: Fall.

### EMT 214 ALS Advanced Special Considerations

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Advanced life support skills approach to emergency care of the emotionally disturbed. Includes emotional aspects, approach to the patient, and psychiatric emergencies. Also includes techniques of management and demonstration of skills within a simulated hospital environment.

Information: Acceptance into an ALS training program is required before enrolling.

Offered: Fall.

### EMT 217 I-EMT National Registry Preparatory Course

2 credit hours/ 3.5 periods (.5 lec., 3 lab)

Review and preparation in standards of intermediate emergency care at the state and national levels. Includes developing testing skills and questions related to assignment, analysis, intervention or evaluation. Includes each component of the Intermediate Emergency Medical Technician National Standard Testing Guidelines.

Information: Acceptance into an I-EMT program is required before enrolling.

Offered: Fall.

### EMT 218 Paramedic National Registry Preparation

3.5 credit hours/ 6 periods (1 lec., 5 lab)

Review and preparation in standards of paramedic emergency care at the state and national levels. Includes developing testing skills and questions related to assessment, analysis, intervention or evaluation. Also includes each component of the Emergency Medical Technician Paramedic National Standard Curriculum.

Information: Acceptance into a paramedic program is required before enrolling in.

Offered: Fall.

**EMT 219 ALS Foundations**

1.5 credit hours/ 1.75 periods (1.25 lec., .5 lab)

Introduction to the Advanced Life Support (ALS) career field. Includes roles and responsibilities, Emergency Medical Services (EMS) components, well being, illness and injury prevention, ethics, medical and legal considerations.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 221 ALS Airway and Ventilation**

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Techniques for establishing and/or maintaining a patent airway. Also includes anatomy and physiology, age specific techniques and procedures, introduction to respiratory pharmacology and respiratory drug profiling.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 222 ALS Patient Assessment and Assessment Based Management**

1.5 credit hours/ 1.75 periods (1.25 lec., .5 lab)

Skills to take a proper history and perform an advanced physical assessment on an emergency patient, and communicate the findings to the patient and others. Includes the physical exam, integrative and on going exams, communications and documentation. Includes the implementation of a management plan for patients with common complaints and injuries, dispatch scenarios, scene size-up and forming impressions.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 223 ALS Trauma Emergencies and Systems**

2 credit hours/ 2.25 periods (1.75 lec., .5 lab)

Techniques to formulate a field impression and implement the treatment plan for the trauma or shock patient. Includes shock, burn injuries, and isolated and multi-systems trauma.

Information: Acceptance into an ALS training program is required before enrolling in this course.  
Offered: Fall.

**EMT 224 ALS Medical Emergencies**

4 credit hours/ 5 periods (3 lec., 2 lab)

Introduction to the utilization of assessment findings to formulate a field impression and implement the treatment plan for the medical patient. Includes respiratory, cardiovascular, neurological, endocrine, allergic, toxic, abdominal and urologic, environmental, behavioral and gynecological emergencies.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 225 ALS Special Medical Considerations**

2 credit hours/ 2.25 periods (1.75 lec., .5 lab)

Introduction to special medical consideration concepts. Includes using assessment findings to formulate a field impression and implement the treatment plan for obstetric, neonatal, pediatric, geriatric, and chronic-care patients.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 227LC ALS Practicum: Clinical Lab**

3 credit hours/ 9 periods (9 lab)

Techniques for performing and documenting in accordance with established guidelines, orders, and protocols, and act within the scope of practice of the ALS Professional and under medical supervision. Includes critical care, emergency department, labor and delivery, pediatrics, and specialty units.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 228LC ALS Practicum: Vehicular Lab**

3 credit hours/ 9 periods (9 lab)

ALS vehicular lab concepts. Includes techniques for performing and documenting in accordance with established guidelines, orders, and protocols, and act within the scope of practice of the ALS Professional and under medical supervision during a vehicular lab.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 230 Basic ECG Interpretation**

1.5 credit hours/ 1.75 periods (1.25 lec., .5 lab)

Intro to all levels of emergency care providers with basic electro-cardiographic (ECG) rhythm analysis. Includes interpretation and related care in a clinical and pre-hospital setting.

Information: Required content for identification and treatment of cardiac emergencies.  
Offered: Fall.

**EMT 231 EMT-Intermediate Transition**

4 credit hours/ 5.5 periods (2.5 lec., 3 lab)

This course provides an Arizona certified I-EMT with additional training necessary to make the I-EMT's skills equivalent to the skills of an I-EMT who has completed the 2001 Arizona I-EMT curriculum. The 2001 Arizona I-EMT

curriculum is based on the NHTSA.DOT's 1999 I-EMT curriculum.

Information: Current I-EMT State of Arizona certification is required before enrolling.

Offered: May not be offered this year, check class schedule.

**EMT 242 ALS Advanced Foundations**

2 credit hours/ 2.5 periods (1.5 lec., 1 lab)

Foundations of skills and principles in preparing to be a paramedic. Includes medical terminology, the human body structure, and pathophysiology.

Prerequisite(s): EMT 220.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 244 ALS Advanced Medical Emergencies**

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Continuation of EMT 224. Advanced life support techniques using pre-hospital approaches to the recognition and intervention of medical emergencies related to toxicology, infectious disease, and hematology. Includes poisoning, drug overdose, and transmission of infectious diseases.

Prerequisite(s): EMT 224.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 247LC ALS Advanced Practicum: Clinical Lab**

3 credit hours/ 9 periods (9 lab)

Continuation of EMT 227LC. In-hospital clinical procedures for the ALS professional. Includes placement in the clinical (hospital) setting for supervised skills application with real patients.

Prerequisite(s): EMT 227LC.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 248LC ALS Advanced Practicum: Vehicular Lab**

3 credit hours/ 9 periods (9 lab)

Continuation of EMT 228LC. Pre-hospital emergency medical procedures for the ALS professional. Includes skills appropriate to the ALS scope of practice in the pre-hospital setting according to established protocols.

Prerequisite(s): EMT 228LC.

Information: Acceptance into an ALS training program is required before enrolling.  
Offered: Fall.

**EMT 250 Advanced Cardiac Care**

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Introduction to the integration of pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease/injury based on 3-lead and 12-lead cardiac monitoring and interpretation. Includes information on cardiovascular anatomy and physiology, cardiovascular pathologies and management, and adjunctive diagnostics.

Offered: Fall.

**EMT 251 Advanced Cardiac Care Refresher**

.75 credit hours/ 1 periods (.5 lec., .5 lab)

Review of the integration of pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease/injury based on 3-lead and 12-lead cardiac monitoring and interpretation. Also includes information on cardiovascular anatomy and physiology, cardiovascular pathologies and management, and adjunctive diagnostics.

Offered: Fall.

**EMT 252 Pediatric Advanced Life Support**

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Techniques for emergency services for children. Integrates physiological, psychological, and social changes throughout human growth and development. Includes information on pediatric assessment, airway management and respiratory emergencies, cardiovascular emergencies. Also includes information on neonatal emergencies, children with special healthcare needs, and Sudden Infant Death Syndrome (SIDS).

Offered: Fall.

**EMT 253 Pediatric Advanced Life Support Refresher**

.75 credit hours/ 1 periods (.5 lec., .5 lab)

Overview of techniques for emergency services for children. Integrated physiological, psychological, and social changes throughout human growth and development. Includes information on pediatric assessment, airway management and respiratory emergencies, cardiovascular emergencies. Also includes information on neonatal emergencies, children with special healthcare needs, and Sudden Infant Death Syndrome (SIDS).

Offered: Fall.

**EMT 254 Advanced ECG Interpretation**

3 credit hours/ 3.5 periods (2.5 lec., 1 lab)

Integration of pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease/ injury based on 3-lead and 12-lead cardiac monitoring and interpretation. Also includes information on cardiovascular anatomy and physiology, electrocardiographic monitoring, and adjunctive diagnostics.

*Prerequisite(s):* EMT 230.

Offered: Fall.

**EMT 255 Instructional Strategies**

2 credit hours/ 2.5 periods (1.5 lec., 1 lab)

Introduction for organization and preparation of curriculum materials for presentation. Includes instructor roles and responsibilities, legal issues, the adult learner, creating an effective learning environment, and instructional strategies and methods.

Offered: Spring.

**EMT 256 Basic Trauma Life Support**

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Techniques for evaluating assessment findings to formulate a field impression and implementation of the treatment plan. Includes systemic approach to patient assessment and management, airway and ventilation, shock, soft tissue and burn injuries, isolated and multi-systems trauma, and various types of trauma patients.

Offered: Fall.

**EMT 257 Basic Trauma Life Support Refresher**

.75 credit hours/ 1 periods (.5 lec., .5 lab)

Overview of techniques for evaluating assessment findings to formulate a field impression and implementation of the treatment plan. Includes systemic approach to patient assessment and management, airway and ventilation, shock, soft tissue and burn injuries, isolated and multi-systems trauma, and various types of trauma patients.

Offered: Spring.

**EMT 258 Pediatric Education for Pre-Hospital Professionals**

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Foundations of skills and principles in dealing with pediatric patients in a pre-hospital setting. Includes information on the integration of the physiological, psychological, and social changes throughout human growth and development with assessment and communication strategies for patients of all ages.

Offered: Spring.

**EMT 259 Pediatric Education for Pre-hospital Professionals Refresher**

.75 credit hours/ 1 periods (.5 lec., .5 lab)

Overview of the foundations of skills and principles in dealing with pediatric patients in a pre-hospital setting. Includes information on the integration of the physiological, psychological, and social changes throughout human growth and development with assessment and communication strategies for patients of all ages.

Offered: Spring.

**EMT 260 Advanced Life Support Refresher**

3 credit hours/ 3.5 periods (2.5 lec., 1 lab)

Introduction of skills to enhance knowledge regarding roles and responsibilities of an emergency medical technician and utilize the assessment findings to formulate a field impression and implement the treatment plan for airway, ventilation, and oxygen therapy, trauma and shock management, medical emergencies, special patient care, and special scene operations.

Offered: Spring.

**EMT 261 National Registry of Emergency Medical Technician Evaluator**

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Techniques used to prepare for and implement the evaluation criteria for all basic and advanced level pre-hospital emergency medical technology skills involving candidates testing for National Registry of Emergency Medical Technician (EMT) Certification. Also includes information on ethics and professionalism, evaluator and participant criteria, roles and responsibilities, candidate stress and station preparation and implementation.

Offered: Fall.

**EMT 263 Tox-Medic**

1.5 credit hours/ 1.5 periods (1.5 lec.)

Provides paramedics with the training required which authorizes them to perform a medical treatment or administer a drug when responding to a hazardous materials incident.

Offered: Fall.

**EMT 264 Tox-Medic Refresher**

.5 credit hours/ .5 periods (.5 lec.)

Provides paramedics with continuing training in identification, assessment, and treatment of victims exposed to hazardous materials.

*Prerequisite(s):* EMT 263.

Offered: Spring.

**EMT 295 ALS Independent Research**

3 credit hours/ 3 periods (3 lec.)

Independent research in advanced pre-hospital care.

Information: To be arranged by instructor.

Offered: Fall.

**ENGINEERING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ENG 102IN Problem-Solving and Engineering Design**

3 credit hours/ 5 periods (2 lec., 3 lab)

Design, effective team participation, and career preparation in engineering. Includes the different engineering fields and careers, basic skills associated with engineering problem solving and communication, the design process, participation in hands-on design projects, and ethics and professional responsibility.

*Prerequisite(s):* MAT 151 and 182 or 187.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 110IN Solid State Chemistry**

4 credit hours/ 6 periods (3 lec., 3 lab)

Fundamental principles of the chemistry of condensed states of matter including metals, polymers, molecular solids and ceramics.

*Prerequisite(s):* CHM 151 and MAT 220 or concurrent enrollment.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 120IN Engineering Graphics**

3 credit hours/ 7 periods (1 lec., 6 lab)

Principles and techniques of engineering graphics. Includes orthographic drawing methods, pictorial drawings, descriptive geometry, and computer aided design.

*Prerequisite(s):* MAT 108.

Information: Prerequisite may be waived with high school geometry. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 130IN Elementary Surveying**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the subject of surveying as it pertains to the field of civil engineering. Includes measurement of distances, leveling, profiling and grade calculations, measurement of angles, remote elevations, and traverse closure. Also includes topographic surveys, public land surveying, and land ownership.

*Prerequisite(s):* MAT 151 and 182 or 187.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 170IN Problem-Solving Using Computers**

3 credit hours/ 5 periods (2 lec., 3 lab)

Design of problem-solving algorithms. Includes structure of C programs, data types, operations, and basics of C, selection, repetition, arrays, functions, data files, addresses and pointers, character strings, and engineering applications.

*Prerequisite(s):* MAT 151 and 182 or 187.

Information: IN is the integrated version of the course with lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 175IN Computer Programming for Engineering Applications**

3 credit hours/ 5 periods (2 lec., 3 lab)

Programming in C with emphasis on numerical applications in engineering. Includes structure of C programs, data types, operations, and basics of C, selection, repetition, arrays, functions, and data files.

*Prerequisite(s):* MAT 151 and 182 or 187.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 210 Engineering Mechanics: Statics**

3 credit hours/ 3 periods (3 lec.)

Engineering analysis of static mechanical systems. Includes vector algebra, equilibrium of particles and rigid bodies, forces, moments, couples, equivalent force systems, analysis of simple structures (trusses, beams, frames, cables, machines), friction, first and second moments of area (moment of inertia).

*Prerequisite(s):* PHY 210, MAT 231.

Offered: Fall, Spring.



**ENG 218 Fluid Mechanics**

3 credit hours/ 3 periods (3 lec.)

Introduction and fundamental concepts of fluid dynamics and fluid statics. Includes basic equations for a control volume, fluids in motion, inviscid flow, dimensional analysis, flow in pipes and ducts, and boundary layers.

*Prerequisite(s):* ENG 210, and MAT 241.

Offered: Fall, Spring.

**ENG 220 Engineering Mechanics: Dynamics**

3 credit hours/ 3 periods (3 lec.)

Study of the motion of bodies under the action of forces. Includes introduction to dynamics, kinematics of particles and rigid body, kinetics of particles and rigid body, and vibration.

*Prerequisite(s):* ENG 210, MAT241.

Offered: Fall, Spring.

**ENG 230 Mechanics of Materials**

3 credit hours/ 3 periods (3 lec.)

Introduction to the analysis and design of the mechanical properties of materials. Includes the concept of stress and strain, axially loaded members, torsion, stresses and strains in beams, analysis of stress and strain, deflections of beams, and columns.

*Prerequisite(s):* ENG 210.

Offered: Fall, Spring.

**ENG 232 Thermodynamics**

3 credit hours/ 3 periods (3 lec.)

Basic laws and examples of engineering applications of macroscopic thermodynamics. Includes an introduction to concepts and definitions, energy and the first law of thermodynamics, evaluating properties, control volume energy analysis, the second law of thermodynamics, using entropy, vapor power systems, gas power systems, and refrigeration and heat pump systems.

*Prerequisites:* MAT 241, PHY 216

Offered: Fall, Spring.

**ENG 250 Numerical Analysis for Engineers**

3 credit hours/ 3 periods (3 lec.)

Applications of numerical methods and computer programming techniques for the creation of mathematical models of engineering systems. Includes roots of equations, linear simultaneous equations, numerical integration, ordinary differential equations, interpolation and curve fitting.

*Prerequisite(s):* ENG 170 or 275, and MAT 231.

Offered: May not be offered this year, check class schedule.

**ENG 260 Electrical Engineering**

3 credit hours/ 3 periods (3 lec.)

Introductory survey of the electrical engineering discipline with emphasis on electrical power applications. Includes electrical quantities, components, meters, capacitors, inductors, and transients. Also includes DC resistive network analysis, magnetic circuits, transformers, motors, and generators.

*Prerequisite(s):* MAT 231 and PHY 216.

Offered: Fall, Spring.

**ENG 274IN Digital Logic**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the theory and design of digital logic circuits. Includes number systems, coding of information, Boolean algebra, combinational logic circuit design, sequential circuit design, and register transfer system design.

Information: Integrated version of the course with lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 282IN Basic Electric Circuits**

5 credit hours/ 7 periods (4 lec., 3 lab)

Circuit variables, circuit elements, and simple resistive circuits. Includes techniques of circuit analysis, operational amplifiers, inductors, capacitors, mutual inductance, response of RLC circuits, sinusoidal steady-state analysis, and transformers.

*Prerequisite(s):* ENG 102.

Information: Integrated version of the course with lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENGLISH AS A SECOND LANGUAGE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ESL 050 English for Beginners**

6 credit hours/ 6 periods (6 lec.)

Introduction to the basics of English as a second language through an integrated skills approach: reading, writing, listening, and speaking. Includes letters of the alphabet, basic pronunciation rules, day-to-day communication, foundational grammar, writing conventions, and study skills.

*Recommendation:* For students with no previous knowledge of English.

Offered: Fall, Spring, Summer.

**ESL 060 English for Speakers of Other Languages I**

6 credit hours/ 6 periods (6 lec.)

Basic-level, integrated-skills course for non-native speakers of English with some, but limited, English ability. Includes practice in listening, speaking, pronunciation, vocabulary building, grammar, reading, writing, and learning strategies. Emphasizes the development of English proficiency.

*Prerequisite(s):* ESL 050 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring, Summer.

**ESL 061 Conversation I**

3 credit hours/ 3 periods (3 lec.)

Basic conversation skills for situations and tasks relevant to daily life, social interactions, and personal interests, functions of spoken English. Also includes levels of formality and nonverbal language.

*Prerequisite(s):* ESL 050 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring.

**ESL 063 English on the Job I**

3 credit hours/ 3 periods (3 lec.)

Basic job-related English for non-native speakers of English with some, but limited English ability. Includes language skills needed for entry-level job search, starting a new job, following safety rules, and understanding American culture in the workplace.

*Prerequisite(s):* ESL 050 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall.

**ESL 064 Introduction to American Culture**

3 credit hours/ 3 periods (3 lec.)

Basic-level integrated skills course on American culture for ESL students. Includes development of basic English through exploration of topics on American culture and the nature of cultural adjustment.

*Prerequisite(s):* Required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: May not be offered this year, check class schedule.

**ESL 070 English for Speakers of Other Languages II**

6 credit hours/ 6 periods (6 lec.)

Intermediate-level, integrated skills for non-native speakers of English with an emphasis on improving English proficiency and understanding of American culture. Includes continued practice in listening, speaking, pronunciation, vocabulary building, grammar, reading, writing, and learning strategies. Also includes using computer technology for word processing and using college and community resources.

*Prerequisite(s):* ESL 060 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring, Summer.

**ESL 071 Conversation II**

3 credit hours/ 3 periods (3 lec.)

Intermediate-level conversation class. Includes instruction in idiomatic expressions and vocabulary building, nonverbal communication, and language functions. Emphasis on speaking about topics relevant to life in the U.S. and American culture.

*Prerequisite(s):* ESL 060 or higher with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring.



**ESL 072 Pronunciation II**

3 credit hours/ 3 periods (3 lec.)

Pronunciation for non-native English speakers at the intermediate level. Includes introduction to pronunciation improvement, articulation of segmentals, and suprasegmentals. Emphasis on achieving increased overall intelligibility through improved production of English intonation, stress, rhythm, vowels, and consonants.  
Prerequisite(s): ESL 060 or higher with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring.

**ESL 073 English on the Job II**

3 credit hours/ 3 periods (3 lec.)

General workplace communication skills for intermediate ESL students. Includes job search skills, communication with supervisors and co-workers, discussion of intercultural issues, employee rights and responsibilities, and problem-solving strategies. Develops English language skills through integrated practice of both spoken and written English.

Prerequisite(s): ESL 060 or 063 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Spring.

**ESL 074 American English and Culture Through Film**

3 credit hours/ 3 periods (3 lec.)

Intermediate-level study of American English and culture through film. Includes exploration of American cultural values and icons. Also includes an emphasis on the development of listening comprehension skills, speaking, and writing.

Prerequisite(s): ESL 070 or higher with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall.

**ESL 075 Computer Technology to Develop English Skills**

3 credit hours/ 3 periods (3 lec.)

Instruction and practice using computer technology to enhance English skill development. Includes computer operation and applications, oral and written English communication skills, and application of technological skills to enhance personal English development. Also includes utilizing ESL software, ESL websites and the World Wide Web.

Prerequisite(s): ESL 060 or higher with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring.

**ESL 080 English for Speakers of Other Languages III**

6 credit hours/ 6 periods (6 lec.)

Upper-intermediate-level, integrated-skills course for students with emphasis on improving English proficiency and understanding of American culture. Includes continued practice in listening, speaking, pronunciation, vocabulary building, grammar, reading, writing, and learning strategies. Also includes orientation to college resources.

Prerequisite(s): ESL 070 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring, Summer.

**ESL 081 Conversation III**

3 credit hours/ 3 periods (3 lec.)

Advanced-level conversational skills for increased fluency and comprehension. Includes conversational conventions, vocabulary, critical thinking skills, language functions, and non-verbal communication.

Prerequisite(s): ESL 070 or higher with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring.

**ESL 082 Pronunciation III**

3 credit hours/ 3 periods (3 lec.)

Pronunciation for non-native English speakers at the advanced level. Includes review of articulation of consonants and vowels, strategies for continued pronunciation improvement, stress patterns, intonation and voice quality, phrasing and linking, and articulation of segmentals. Emphasis is on achieving increased overall intelligibility through improved production of English stress, rhythm, intonation, phrasing, and voice quality in communicative contexts.

Prerequisite(s): ESL 070 or higher with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring, Summer.

**ESL 083 Idioms in American English**

3 credit hours/ 3 periods (3 lec.)

Study of idioms commonly used in American English at the high-intermediate to advanced levels. Includes comprehension and use of idioms in oral and written contexts. Includes identification of cultural values and connotations associated with idioms and the development of increased fluency in spoken English.

Prerequisite(s): ESL 070.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: May not be offered this year, check class schedule.

**ESL 084 Exploring American Film**

3 credit hours/ 3 periods (3 lec.)

Advanced English language skills development through exploration of topics on American film. Includes analysis and discussion of genres and artistic elements of popular American films. Also includes and emphasis on development of listening comprehension skills, speaking, writing, and critical thinking skills.

Prerequisite(s): ESL 080 or higher with a C or better or concurrent enrollment or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Spring.

**ESL 085 Academic English I**

6 credit hours/ 6 periods (6 lec.)

High-intermediate-level, integrated academic skills for non-native speakers of English. Includes texts and discourse on academic topics, high-intermediate grammatical structures, writing about topics relevant to academic course work, word processing, using the internet, and goal setting.

Prerequisite(s): ESL 080 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring, Summer.

**ESL 087 Comprehensive TOEFL Preparation**

3 credit hours/ 3 periods (3 lec.)

Comprehensive Test of English as a Foreign Language (TOEFL) test preparation for ESL/EFL students. Includes introduction to the TOEFL and the test-taking strategies, skill review with intensive practice for all four test components: grammar, listening and speaking, Test of Written English (TWE), reading, and vocabulary, and the TOEFL guidelines and procedures.

Prerequisite(s): ESL 085 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring, Summer.

**ESL 087A Grammar and TOEFL Preparation**

1 credit hour/ 1 period (1 lec.)

Comprehensive Test of English as a Foreign Language (TOEFL) test preparation for ESL/EFL students. Includes introduction to the TOEFL and the test-taking strategies, skill review of grammar and Test of Written English (TWE), and the TOEFL guidelines and procedures.

Prerequisite(s): ESL 085 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: May not be offered this year, check class schedule.

**ESL 087B Listening Skills and TOEFL Preparation**

1 credit hour/ 1 period (1 lec.)

Comprehensive Test of English as a Foreign Language (TOEFL) test preparation for ESL/EFL students. Includes introduction to the TOEFL and the test-taking strategies, skill review of listening and speaking, and the TOEFL guidelines and procedures.

Prerequisite(s): ESL 085 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: May not be offered this year, check class schedule.

**ESL 087C Reading Review and TOEFL Preparation**

1 credit hour/ 1 period (1 lec.)

Comprehensive Test of English as a Foreign Language (TOEFL) test preparation for ESL/EFL students. Includes introduction to the TOEFL and the test-taking strategies, skill review of reading and vocabulary, and the TOEFL guidelines and procedures.

Prerequisite(s): ESL 085 with a C or better or required score on ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: May not be offered this year, check class schedule.

**ESL 088 Academic English II**

6 credit hours/ 6 periods (6 lec.)

Advanced-level, integrated academic skills for non-native speakers of English. Includes four content-based units including text and discourse on academic topics, advanced grammatical structures, reading academic texts, writing about academic topics, using word processing and the internet, goal setting.

Prerequisite(s): ESL 085 with a C or better or required score on the ESL assessment test.

Information: Prerequisites may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring.

**ESL 103 Total English Experience for International Students**

1-12 credit hours/ 1-12 periods (1-12 lec.)

Concepts, techniques, and skills to immerse international students in a total English experience. Intensive approach to the English experience for academic, professional or personal purposes. Includes integrated skills, experiential learning and flexible content to develop communicative competence in reading, writing, listening, speaking and cultural areas. Also includes a specific theme, professional or academic, that will form the basis for contextualized vocabulary and course emphasis.

Prerequisite(s): Required minimum score of 300 on the TOEFL.

Offered: Summer.

**ENVIRONMENTAL TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ENV 105 Humanity and the Environment**

3 credit hours/ 3 periods (3 lec.)

Technical, sociocultural, and political information on environmental science and technology for non-ENV majors. Includes ecosystems, population impacts, hydrological systems, air pollution, and environmental toxins. Also includes current topics such as the green house effect, acid rain, drinking water contamination, toxic waste spills, governmental regulation and enforcement, and future environmental trends.

Corequisite(s): ENV 105LB

Information: Same as ANT 105.

Offered: Fall, Spring.

**ENV 105LB Humanity and the Environment Discovery Laboratory**

1 credit hour/ 3 periods (3 lab)

Laboratory exercise and field trip experiences as applied to the relationship between humanity and the environment. Includes examining ecology and biodiversity, healthy- carrying capacity models, and waste by-products and their sources. Also includes designing pollution prevention and sustainable campus/town models, developing increased environmental ethics in our society, and anthropological relationships to the environment.

Corequisite(s): ENV 105

Information: This laboratory course satisfies the fourth credit hour of the Biological and Physical Science general education transfer credit if taken along with ENV 105. Same as ANT 105LB.

Offered: Fall, Spring.

**ENV 196 Independent Study in Environmental Technology**

1-3 credit hours/ .75-8.25 periods (.25-2.75 lec., .5-5.5 lab)

Independent study in Environmental Technology. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ENV 251 OSHA 40: Hazardous Materials - Health and Safety**

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Protection of personnel in contact with hazardous materials. Includes basic toxicology, personal protection and safety, hazard identification systems, recognition and identification of hazardous materials, hazard classes and their properties, site emergencies, spill control and clean up. Meets OSHA requirements for business, industry, and government hazardous materials handlers.

Recommendation: Completion of ENV 100 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ENV 296 Advanced Independent Study in Environmental Technology**

1-3 credit hours/ .75-8.25 periods (.25-2.75 lec., .5-5.5 lab)

Independent study in Environmental Technology. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ENV 297 Experiential Capstone Internship**

4 credit hours/ 12 periods (2 lec., 10 lab)

Project based experiential course where students will work on projects proposed by local industrial mentors, study global issues including safety, the environment and ethics. Includes lectures consisting of group activities, presentation of case studies and instruction on computer skills, communication, professionalism and ethics, safety and creating and making formal presentations.

Offered: May not be offered this year, check class schedule.

**ENV 299 Introduction to Co-op: Environmental Technology**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience.

Corequisite(s): ENV 299WK

Information: Emphasis on attitude adjustment. May be taken two times for a maximum of two credit hours. Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**ENV 299WK Co-op Work: Environmental Technology**

1-8 credit hours/ 5-40 periods (5-40 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

Corequisite(s): ENV 299

Information: May be taken two times for a maximum of sixteen credit hours. Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**EQUINE SCIENCE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**EQS 101 Equine Anatomy and Physiology**

3 credit hours/ 5 periods (2 lec., 3 lab)

Basic instruction in the structure and function of the horse. Includes an introduction to the scientific method as it relates to the horse, anatomy and physiology of the equine species, and basics of conformation analysis.

Information: Prepares for further science and equitation studies in equine science.

Offered: May not be offered this year, check class schedule.

**EQS 102 Equine Judging**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the proper selection and judging of horse conformation and performance. Includes concepts of anatomy, condition, and way of going. Standards of equine judging will be emphasized.

Information: May be taken four times for a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**EQS 200 Equine Animal Science I**

3 credit hours/ 3 periods (3 lec.)

Basic instruction in equine animal science. Includes equine conformation disorders, basic equine nutrition and disorders of nutrition, parasitology, infectious diseases, and injury induced lameness.

Offered: May not be offered this year, check class schedule.

**EQS 201 Equine Animal Science II**

3 credit hours/ 3 periods (3 lec.)

Advanced topics in equine animal science. Includes the anatomy and physiology of the equine nervous, endocrine and reproductive system, reproductive physiology of the mare and the stallion, breeding management practices, foaling and the neonatal period, foal management, advanced techniques in equine reproduction, business management for the mare owner and the stallion service manager.

Prerequisite(s): EQS 200.

Offered: May not be offered this year, check class schedule.

**EQS 203 Horse Care and Management**

4 credit hours/ 6 periods (3 lec., 3 lab)

The care and management of the horse as a domestic companion animal. Includes basic veterinary requirements, feeds and feeding, stabling, and preventive health care.

Offered: May not be offered this year, check class schedule.

## EXPERIENTIAL EDUCATION

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### EED 110 Prior Learning Assessment

1-6 credit hours/ 1-6 periods (1-6 lec.)

Explore credit options through the development of an individual's portfolio. Includes how to collect and present materials which identify, describe, and validate professional training and experiential learning which can be evaluated for college-level credit equivalency. Students in this course must be willing to spend considerable time in the preparation of the portfolio which can be submitted to a portfolio evaluator.

Information: A maximum of nine credits may be earned for the EMT-Basic program; students must register for two credits. A maximum of 36 credits may be earned for the Fire Science, Law Enforcement, Corrections, Juvenile Corrections, Public Safety Communications and Intermediate EMT programs; students must register for three credits. A maximum of 50 credits may be earned for the EMT Paramedic program; students must register for six credits. A maximum of 9 credits may be earned by students who have earned credit previously in this course; students must register for one credit.

Offered: May not be offered this year, check class schedule.

## EXPLORATORY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### EXP 100 Survey of Legal Related Careers

4 credit hours/ 4 periods (4 lec.)

Introduction to legal related careers. Includes legal assistant (paralegal), administrative support, court support services, and administration of justice.

Offered: May not be offered this year, check class schedule.

## FASHION DESIGN AND CLOTHING

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### FDC 111 Clothing Construction I: Beginning

3 credit hours/ 5 periods (2 lec., 3 lab)

Fundamental principles of clothing construction. Includes selection of fabric and style and all techniques required for construction of clothing for men, women and/or children using commercial patterns.

Information: Proficiency test may be taken for level placement.

Offered: Fall, Spring.

### FDC 112 Alteration and Pattern Fitting

3 credit hours/ 5 periods (2 lec., 3 lab)

Methods of altering commercial patterns and principles of fitting garments. Includes fitting a basic commercial pattern, making a muslin, creating fit, and evaluation of standards.

Offered: Spring.

### FDC 121 Flat Pattern Making

3 credit hours/ 3 periods (3 lec.)

Introduction to the flat pattern method of pattern making. Includes principles of pattern manipulation, practical applications, and evaluating the applications to a selected design project.

Offered: Fall.

### FDC 122 History of Clothing

3 credit hours/ 3 periods (3 lec.)

Introduction to clothing and personal decoration as a reflection of the wearer's culture, time and place. Includes definition of essential characteristics in the western world, evolution of clothing, geographical and chronological grouping, and areas of analysis of the clothing notebook.

Offered: Spring.

### FDC 123 Introduction to Pattern-Making using Computer Software

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to pattern-making for apparel production using computer software. Includes computer pattern making, making a basic tee shirt, constructing a basic sleeve, grading a completed pattern, and making a pattern-cutting layout.

Offered: May not be offered this year, check class schedule.

### FDC 126 Textiles

3 credit hours/ 5 periods (2 lec., 3 lab)

Technology and science, art and design, and global industry of textiles. Includes emphasis on performance of textile products in apparel, furnishings,

industry, geotextiles, transportation and space exploration. Also includes the components of textile products: fibers, yarns, fabric construction, coloration and finishes, current and developing technology, and environmental effects.

Offered: Fall.

### FDC 131 Clothing Selection

3 credit hours/ 3 periods (3 lec.)

Introduction to the function of wardrobe in contemporary life. Includes the clothing and wearer, current theories on wardrobe, art applied to wardrobe and the individual, and the core working wardrobe.

Offered: Fall.

### FDC 132 Society, Culture, and Dress and the Individual

3 credit hours/ 3 periods (3 lec.)

Human behavior in relationship to clothing, body image, and self-concept. Includes behavior and dress, clothing as messenger, the ritual of dress, clothing for masses, and life stages and clothing and image needs.

Offered: Spring.

### FDC 141 Introduction to Fashion Design

3 credit hours/ 3 periods (3 lec.)

Survey of the business of apparel manufacturing and fashion design. Includes history of the industry, careers in fashion, designing the garment, influences on design, and organization of a clothing line.

Offered: Fall, Spring.

### FDC 142 Restyling and Alterations

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to techniques for recycling and increasing the life and function of garments. Includes measurement, making, and fitting, techniques for stitching in alternation and fitting, restyling, repair, and conservation of fabric and garments.

Offered: Fall.

### FDC 144 Fashion Drawing

3 credit hours/ 5 periods (2 lec., 3 lab)

Technical drawing of a garment on the fashion figure. Includes working on original designs and presenting them in a portfolio. Also includes fabrics and how to render them as well as a basic knowledge of garment construction.

Recommendation: Completion of ART 110 or 213 before enrolling in this course.

Offered: Fall, Spring.

### FDC 196 Independent Studies in Fashion Design and Clothing

1-3 credit hours/ 1.25-6 periods (1-3 lec., .25-3 lab)

Independent projects for continuing individual development in fashion design and clothing under the guidance of a faculty member. Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### FDC 211 Clothing Construction II: Advanced

3 credit hours/ 5 periods (2 lec., 3 lab)

Advanced techniques in construction of clothing. Includes principles applied to special fabrics, fabric selection for specialty garments, and evaluation.

Prerequisite(s): FDC 111 or required score on assessment test.

Offered: Fall, Spring.

### FDC 212 Clothing Construction III: Tailoring

3 credit hours/ 5 periods (2 lec., 3 lab)

Traditional and speed-tailoring methods utilizing advanced techniques and materials. Includes pattern alterations, buttonholes, welt pockets, shaping the interfacing, inner structure, and complete garment evaluation.

Prerequisite(s): FDC 112 and 211.

Information: Prerequisites may be waived with consent of instructor.

Offered: Spring.

### FDC 241 Introduction to the Draping Method of Garment Design

3 credit hours/ 5 periods (2 lec., 3 lab)

Application of design principles using the draping method of fashion design to create an original garment. Includes review of essential design principles, fabrics, applying fabrics to the dress form, and practical applications.

Prerequisite(s): FDC 111, 141, and 211.

Offered: Spring.



## FINANCE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### FIN 100 Basic Principles of Organizational Finance

1 credit hour/ 1 period (1 lec.)

Introduction to the fundamental principles of finance in profit-making, governmental, and not-for-profit organizations. Includes financial statements, common ratios, budgeting systems, cash forecasting, time value of money, investment decision, and break-even analysis.

Offered: May not be offered this year, check class schedule.

### FIN 111 Personal Investment Portfolios

3 credit hours/ 3 periods (3 lec.)

Examination of various investment vehicles and portfolios. Includes role and scope of investments, economic analysis, equity securities, bond and fixed-income investments, mutual funds, annuities, other investment options, and portfolio management.

Offered: May not be offered this year, check class schedule.

### FIN 131 Principles of Credit Unions

3 credit hours/ 3 periods (3 lec.)

Introduction to credit union organizations. Includes concept and operating principles, historical development, structure, legal basis and regulation, membership demographics and services, leadership, credit union system in the United States, insurance and bonding by Credit Union National Association (CUNA), and current challenges.

Offered: Fall.

### FIN 136 Personal and Family Finance for Retirement

1 credit hour/ 1 period (1 lec.)

Overview of investments and family financial management for retirement. Includes strategies to preserve and accumulate wealth, protection of assets against the death of a family member, real estate, and strategies to minimize tax effects on bequests.

Offered: May not be offered this year, check class schedule.

### FIN 190 Internship in Finance

1.2-9 credit hours/ 2-41 periods (1 lec., 1-40 lab)

Supervised internship in a financial workplace. Includes experiences supervised by a professional in the field.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### FIN 190A Internship in Finance - Module A

1 credit hour/ 1 period (1 lec.)

Survey of the financial workplace. Includes up-to-date employment information, preparing for work, and job-related expectations.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### FIN 190B Internship in Finance - Module B

.2-8 credit hours/ 1-40 periods (1-40 lab)

Experience in the financial workplace. Includes assignment in a professional office and supervision by a Pima faculty member and a workplace supervisor.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### FIN 217 Analyzing Financial Statements

1 credit hour/ 1 period (1 lec.)

Overview analysis of financial data. Includes income statement analysis and interpretation, retained earnings statement, balance sheet, statement of changes in financial position, sources of data, and key financial ratios.

### FIN 231 Credit Union Operations

3 credit hours/ 3 periods (3 lec.)

Principles of credit union organization, department functions, and compliance to consumer regulations. Includes member services, credit granting, collections, marketing, financial counseling, and credit union laws and regulations.

Offered: May not be offered this year, check class schedule.

### FIN 239 Credit Union Financial Management

3 credit hours/ 3 periods (3 lec.)

Credit union accounting and financial management. Includes basic accounting principles, accounting cycle, subsidiary and control general ledgers, financial statements, accruing and calculating member dividends, reserve accounts, internal controls, financial statement analysis, preparing and managing financial budgets, cash flow budgeting, interest earning assets (loans and investments), cost of funds, risk management, financial trends, and audits.

Recommendation: Completion of ACC 101 before enrolling in this course.

Offered: Spring.

## FIRE SCIENCE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### FSC 102 Communicating in Spanish for the Workplace

1-6 credit hours/ 1-6 periods (1-6 lec.)

Basic Spanish for easier communications with the Spanish speaking public. Includes conversational Spanish, work-related Spanish words, phrases, and idioms, and a survey of the cultures where the Spanish language is spoken.

Offered: May not be offered this year, check class schedule.

### FSC 104 Fire Science Careers

1-2 credit hours/ 1-2 periods (1-2 lec.)

Introduction to careers in fire science. Includes the role of the fire fighter, careers in fire fighting, extrication, and fire chemistry. Also includes Air Pak, protective clothing, and the integration of fire sciences with Emergency Medical Services and law enforcement careers.

Offered: May not be offered this year, check class schedule.

### FSC 130 Strength and Fitness for the Fire Service

2.5-3 credit hours/ 2.5-3 periods (2.5-3 lec.)

Overview of fitness as it pertains to prospective firefighters. Includes endurance training, flexibility training, strength conditioning and use of equipment in Fire Incident Readiness Evaluation.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### FSC 149 Fire Operations I

4 credit hours/ 5 periods (3 lec., 2 lab)

Specialized classroom and practical experience in the techniques of firefighting. Includes the chemistry of fire, use of water and other agents, firefighting equipment and its uses, firefighting practices and safety.

Information: Completion of FSC 149 and 150 will help prepare the student for successful completion of State of Arizona Firefighter I practical evaluation.

Offered: Fall, Spring.

### FSC 150 Fire Operations II

4 credit hours/ 5 periods (3 lec., 2 lab)

Specialized classroom and practical experience in the practices and techniques of fire fighting. Includes principles of community fire defense, methods of entry, rescue, tools, apparatus, equipment, salvage, hydraulics, and fire extinguishment.

Information: FSC 149 is required before enrolling in this course.

Offered: Fall, Spring.

### FSC 151 Introduction to Fire Science

3 credit hours/ 3 periods (3 lec.)

Historical and scientific background on the fire protection field. Includes the development and future of the field in America; governmental, industrial and private fire protection organizations and agencies; and employment and promotional opportunities.

Offered: Fall, Spring.

### FSC 152 Fundamentals of Fire Prevention

3 credit hours/ 3 periods (3 lec.)

Introduction to the principles of fire prevention. Includes authority, responsibility and organization of fire prevention, inspection procedures and reports, fire hazard recognition, building construction, and occupancy classifications. Also includes site access and means of egress, water-based fire protection and water supply systems, portable extinguishers, special agent, extinguishing systems, and fire detection and alarm systems, plans review, hazardous materials and flammable and combustible liquids, and storage, handling, and use of other hazardous materials.

Offered: Fall, Spring.

### FSC 153 Hazardous Materials

1-2 credit hours/ 1-2 periods (1-2 lec.)

Basic chemical concepts and their applications to the field of fire science. Includes classes and properties of hazardous materials; recognition and identification of materials; management of materials in transit, in use, and in storage; and management of hazardous materials incidents.

Information: Equivalent to State of Arizona's First Responder, 40-hour course.

Offered: Fall, Spring.

### FSC 154 Advanced Fire Prevention

3 credit hours/ 3 periods (3 lec.)

Introduction to high risk and industrial fire prevention. Includes code interpretation and application, research, implementing policy, testifying in legal proceedings, and creating forms and job aids. Also includes conducting field inspections and plans review, and building and fire code applications to simulated situations.

Prerequisite(s): FSC 152.

Information: Completion of this course will allow the student to test for Arizona State Certification as Inspector II.

Offered: Fall, Spring.



**FSC 160 Wildland Firefighting**

3 credit hours/ 3 periods (3 lec.)

Basic wildland firefighting. Includes locating and reporting the fire, incident operations and management, suppression equipment, fire behavior, size-up, methods of suppression, and safety.

Information: This course meets State Fire Marshal and Arizona Department of Forestry Guidelines for Wildland Firefighting Training.

Offered: Fall, Spring.

**FSC 162 Hydraulics and Fire Suppression**

3 credit hours/ 3 periods (3 lec.)

Principles of hydraulics as applied to fire suppression. Includes physical laws affecting the movement of water through pipes, hydrants, pumpers, hoses, etc.; functions and limitations of mechanical equipment to overcome these restrictions; effect of friction loss; head and pressure; water system; fire flow requirements; and organization for fire suppression.

Prerequisite(s): MAT 092.

Recommendation: Completion of PHY 101 before enrolling in this course.

Offered: Fall, Spring.

**FSC 163 Fire Apparatus and Equipment**

3 credit hours/ 3 periods (3 lec.)

Overview, concepts, and techniques to use fire equipment. Includes automotive apparatus (pumpers, aerial ladders, lift platforms, hose wagons, transports and utility vehicles), water towers, heavy auxiliary mechanical equipment and appliances, generators, compressors, rescue and forcible entry tools and cutting torches.

Prerequisite(s): FSC 149.

Offered: Spring.

**FSC 164 Fire Protection Systems**

3 credit hours/ 3 periods (3 lec.)

Principles of fire protection systems. Includes portable and fixed fire extinguishing equipment, automatic sprinkler and deluge systems, rate of temperature rise and smoke detecting devices and alarm systems.

Prerequisite(s): FSC 162.

Offered: Fall, Spring.

**FSC 165 Building Construction for Fire Protection**

3 credit hours/ 3 periods (3 lec.)

Principles of building design as related to fire protection. Includes fire travel, relation of fire load to propagation of flame, non-conforming structures and application of building codes.

Offered: Fall.

**FSC 166 Fire Suppression, Strategy and Tactics**

3 credit hours/ 3 periods (3 lec.)

Principles of planning fire suppression attacks. Includes planning an attack to fit the problem and revising the plan of attack to meet changing situations.

Prerequisites: FSC 149 and 150

Information: None

Offered: Fall.

**FSC 167 Rescue Practices for the Fire Service**

2.5-3 credit hours/ 2.5-3 periods (2.5-3 lec.)

Introduction to skills necessary to assess, extricate, and care for victims in emergency situations. Includes an overview of fire service-based rescue, rescue operations and incident management, and civilian versus firefighter rescue. Also includes why firefighters become victims and an overview of technical rescues.

Offered: Fall, Spring.

**FSC 168 Special Hazard Tactical Problems**

3 credit hours/ 3 periods (3 lec.)

Concepts and techniques designed for the experienced firefighter on successfully mitigating incidents that involve hazards that are not commonly experienced such as hazardous materials under fire conditions. Other examples may include a train derailment and biological attack. Also includes real-life incidents in order to learn from prior experiences, as well as practice with potential scenarios created from the surrounding area.

Information: Designed for experienced firefighters.

Offered: Fall, Spring.

**FSC 170 Fire Service Leadership**

3 credit hours/ 3 periods (3 lec.)

Practical training for fire service leadership and supervision. Includes decision-making, problem solving, running a meeting, managing multiple roles, creativity, power, and ethics. Also includes situational leadership, delegation, coaching, and discipline.

Information: This course meets National Fire Academy (NFA) requirements for Leadership I, II, and III. FSC 170A, 170B, and 170C together constitute FSC 170.

Offered: May not be offered this year, check class schedule.

**FSC 170A Fire Science Leadership I**

1 credit hour/ 1 period (1 lec.)

Practical training for fire service leadership and supervision. Includes decision-making, problem solving, and running a meeting.

Information: This course meets National Fire Academy (NFA) requirements for Leadership I. FSC 170A, FSC 170B and FSC 170C together constitute FSC 170.

Offered: May not be offered this year, check class schedule.

**FSC 170B Fire Science Leadership II**

1 credit hour/ 1 period (1 lec.)

Continuation of FSC 170A. Includes practical training for fire service leadership and supervision. Also includes managing multiple roles, creativity, power, and ethics.

Information: This course meets National Fire Academy (NFA) requirements for Leadership II. FSC 170A, FSC 170B, and FSC 170C together constitute FSC 170.

Offered: May not be offered this year, check class schedule.

**FSC 170C Fire Science Leadership III**

1 credit hour/ 1 period (1 lec.)

Continuation of FSC 170B. Includes practical training for fire service leadership and supervision. Also includes situational leadership, delegation, coaching, and discipline.

Information: This course meets National Fire Academy (NFA) requirements for Leadership III. FSC 170A, FSC 170B, and FSC 170C together constitute FSC 170.

Offered: May not be offered this year, check class schedule.

**FSC 173 Records and Reports**

.25-1 credit hour/ .25-1 periods (.25-1 lec.)

Introduction to the elements and qualities of good report writing and comprehensive documentation. Includes form, style, and methodologies for writing various reports, techniques for developing an accurate narrative, and proper and improper conclusions. Also includes effective and correct use of grammar and the mechanics of writing.

Offered: Fall, Spring.

**FSC 175 Introduction to Fire Investigation: Origin and Recognition of Arson**

3 credit hours/ 3 periods (3 lec.)

Basic principles of arson investigation. Includes an introduction to fire investigation, laws, fire causes, determining point of origin, evidence, fire setters, case investigation and preparation, and courtroom demeanor and testimony.

Offered: Fall, Spring.

**FSC 180 Driver Training for Fire Service**

3 credit hours/ 3 periods (3 lec.)

Techniques for driving and handling fire vehicles. Includes safe operating procedures, defensive driving, apparatus inspection, training in emergency maneuvers, and the key components of the driving system.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

**FSC 181 Firefighter Rescue**

1 credit hour/ 1 period (1 lec.)

Designed to give the firefighter the skills necessary to remove themselves and fellow firefighters from dangerous situations. Includes the skills necessary to perform effectively as a Rapid Intervention Crew (RIC) team with the goal of locating and removing injured or trapped firefighters.

Offered: Fall, Spring.

**FSC 185 Advanced Fire Investigation: Arson**

3 credit hours/ 3 periods (3 lec.)

Training in fire investigation. Includes private sector agencies and fire science and governmental agencies at state and local level, with or without police powers, who have direct responsibility for fire investigations.

Offered: Fall, Spring.

**FSC 189 Current Issues in Fire Science**

2 credit hours/ 2 periods (2 lec.)

Study of current issues in the fire service. Includes developing and writing an independent, applied research project, utilizing various computer applications for formatting and design, and use of the Internet and library resources.

Offered: Fall, Spring.

**FSC 260 Fire and Emergency Services Instructor I**

2 credit hours/ 2 periods (2 lec.)

Theoretical and practical training in developing and instructing fire and emergency services training programs. Includes an exploration of safety and legal issues, adult learning psychology, developing, planning and presenting effective instruction, evaluating student learning, teaching diverse learners, and use of instructional media.

Information: Consent of instructor is required before enrolling in this course. Meets the requirements for the Arizona State Fire Marshal Instructor I certification and NFPA 1041.

Offered: Fall, Spring.

**FSC 261 Fire and Emergency Services Instructor II**

2 credit hours/ 2 periods (2 lec.)

Continuation of FSC 260. Theoretical and practical training in developing, instructing and managing fire and emergency services training programs. Also includes an exploration of the design and development of training programs, performing needs and task analyses, development and utilization of lesson plans, the recruitment, selection and evaluation of instructors, and training manager's responsibilities relating to budget and resource management. Information: FSC 260 or consent of instructor is required before enrolling in this course. Meets the requirements for the Arizona State Fire Marshal Instructor II certification and NFPA 1041.

Offered: Fall, Spring.

**FSC 270 Leadership I for Fire Service Executives**

1 credit hour/ 1 period (1 lec.)

Concepts, techniques, and application of effective executive leadership. Includes leadership styles and characteristics, the effective executive, and leaders with vision, influence and motivation. Also includes being a change facilitator in a traditional organization, and the future of leadership.

Offered: Fall, Spring.

**FSC 271 Leadership II for Fire Service Executives**

1 credit hour/ 1 period (1 lec.)

Continuation of FSC 270. Includes organizational structure, roles and responsibilities, and organizational values. Also includes organizational vision, fiscal management and priorities, innovative organizations, executive leadership, and deployment of self.

Offered: Fall, Spring.

**FSC 272 Leadership III for Fire Service Executives**

1 credit hour/ 1 period (1 lec.)

Continuation of FSC 271. Includes communication skills, presentation skills, and verbal and writing skills at an executive level. Also includes interpersonal skills, labor relations, conflict management, ethical/unethical persuasion, and the media.

Offered: Fall, Spring.

**FSC 273 Leadership IV for Fire Service Executives**

1 credit hour/ 1 period (1 lec.)

Continuation of FSC 272. Includes the local fire department in relation to its city government, local policy development, and understanding how the local educational system works. Also includes legal aspects of the city and department procedures, networking and community relations, relations with local and state fire service providers, and understanding the national and international fire service providers.

Offered: Fall, Spring.

**FSC 274 Leadership V for Fire Service Executives**

1 credit hour/ 1 period (1 lec.)

Continuation of FSC 273. Includes reasoning, thinking patterns, problem identification, and problem solving strategies. Also includes problem solving styles, decision-making models and approaches, personal decision making, and evaluation.

Offered: Fall, Spring.

**FSC 275 Leadership VI for Fire Service Executives**

1 credit hour/ 1 period (1 lec.)

Continuation of FSC 274. Includes master planning, facilities, and human resource planning. Also includes financial planning, strategic planning, implementation planning, and leadership skills in planning for the future.

Offered: Fall, Spring.

**FSC 280 Fire Chief Preparation**

4 credit hours/ 4 periods (4 lec.)

Preparation for professional fire personnel to become chief officers. Includes incident command, communication, and disaster management.

Offered: Fall, Spring.

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**FITNESS AND RECREATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**FAR 050 Senior Fitness and Conditioning**

1 credit hour/ 2 periods (2 lab)

Fitness and conditioning for mature individuals. Includes introduction to general fitness, cardiovascular training, flexibility, strength training, fitness profile, and individual programming.

Offered: Fall, Spring.

**FAR 101 Running for Fitness**

1 credit hour/ 2 periods (2 lab)

Techniques and practice oriented to the beginning and intermediate runner for designing a running program. Includes learning how to train for a 5K, 10K, half marathon or marathon.

*Recommendation: Heart rate monitor and approved by personal health care provider before enrolling in this course.*

Offered: Spring.

**FAR 102 Beginning Bicycling**

1 credit hour/ 2 periods (2 lab)

An introduction to road biking and mountain biking. Includes bike preparation, safety and rider's rules, and nutrition and cardiovascular training.

Information: May be taken six times for a maximum of six credit hours. Each student must have a bicycle.

Offered: May not be offered this year, check class schedule.

**FAR 105 Boot Camp**

1 credit hour/ 2 periods (2 lab)

Cardiovascular conditioning and resistance training. Includes programmatic considerations and cardiovascular and muscular endurance activities.

Information: Intended for individuals with at least 6-8 weeks of fitness training just prior to the class start date; however, students will be pushed to improve their individual conditioning. Activities will be rotated to vary intensity and isolated muscular work through drills, calisthenics and using a variety of exercise equipment.

Offered: Fall, Spring, Summer.

**FAR 107 Pilates: Mat Exercise**

1 credit hour/ 2 periods (2 lab)

A total-body conditioning course to build core strength with emphasis on synthesizing breath control, abdominal support, and pelvic/spinal alignment. Includes principles of exercise, and types of exercises.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring, Summer.

**FAR 108 Circuit Training**

1 credit hour/ 2 periods (2 lab)

Cardiovascular conditioning and resistance training using a variety of exercise equipment. Includes warm-up, cool-down, cardiovascular activities and exercises using body weight, physio-balls, medicine balls, and exercise tubing.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring.

**FAR 109 Walking for Fitness**

1 credit hour/ 2 periods (2 lab)

Individually paced walking using effective biomechanics and techniques as associated with recreation fast-walking. Includes cardiovascular workouts within a target zone to promote positive health, fitness and confidence.

Information: May be taken three times for a maximum of three credit hours.

Offered: Fall.

**FAR 114 Flag Football**

1 credit hour/ 2 periods (2 lab)

Introduction to flag football. Includes rules and safety, offense, defense, special teams, and game play.

Information: May be taken four times for a maximum of four credit hours.

Offered: Spring.

**FAR 115 Kickboxing**

1 credit hour/ 2 periods (2 lab)

Introduction to kickboxing. Includes basic skills, upper body techniques, lower body techniques, and cues.

Information: May be taken eight times for a maximum of eight credit hours.

Offered: Fall, Spring, Summer.

**FAR 120 Self Defense for Women**

1.5 credit hours/ 3 periods (3 lab)

Introduction to the mental attitudes and physical skills needed to defend oneself against an attack. Includes knowing your surroundings, basic safety location techniques, and defensive physical skills.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall, Spring.

**FAR 125 Beginning Fencing**

1 credit hour/ 2 periods (2 lab)

Introduction to fencing for the beginner and novice. Includes fencing techniques and skills, and psychological and learning principles in the analysis of fencing skill acquisition and performance.

Offered: May not be offered this year, check class schedule.

**FAR 126 Beginning Aikido**

1 credit hour/ 2 periods (2 lab)

Introduction to the basic of Aikido. Includes dojo etiquette and philosophy of Aikido, stretching and warm-up exercises, rolling and basic stances, attacks and their proper use, blending, and techniques for disarming attackers.

Information: May be taken six times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

**FAR 130 Beginning Tae Kwon Do**

1 credit hour/ 2 periods (2 lab)

Introduction to the basics of Tae Kwon Do. Includes stretching techniques, warm up exercises, self-defense techniques, and kicking techniques. Also includes skills sufficient to pass the yellow belt test.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring, Summer.

**FAR 131 Intermediate Tae Kwon Do**

1.5 credit hours/ 3 periods (3 lab)

Continuation of FAR 130. Includes basic kicks, unarmed defense form, and defense techniques against an opponent.

Information: May be taken four times for a maximum of six credit hours.

Recommendations: Students should have completed FAR 130 or have earned a yellow belt before enrolling in this course.

Offered: Fall, Spring, Summer.

**FAR 132 Advanced Tae Kwon Do**

1.5 credit hours/ 3 periods (3 lab)

Continuation of FAR 131. Includes practice of unarmed defense, kicks, punches, blocks, strikes, and free-fighting techniques. Also includes basic tournament structure and competition.

Information: Students must complete FAR 131 or obtain consent of the instructor before enrolling in this course. May be taken four times for a maximum of six credit hours.

Offered: Fall, Spring, Summer.

**FAR 136 Beginning Kung Fu**

1 credit hour/ 2 periods (2 lab)

Introduction to the basics of Kung Fu. Includes techniques in kicking and punching, and basic Shaolin forms. Also includes developing body language in areas such as discipline, endurance and attitude.

Offered: Fall, Spring.

**FAR 153 Swim Fit**

1 credit hour/ 2 periods (2 lab)

Cardiovascular conditioning through lap swimming for the fitness enthusiast. Includes basic stroke review. Also includes techniques of endurance swimming and determination of cardiovascular fitness level.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring.

**FAR 154 Water Aerobics**

1 credit hour/ 2 periods (2 lab)

Cardiovascular, strengthening, and flexibility exercise in the pool for swimmers at all levels. Includes review of safety water techniques, and upper and lower body movement in water. Also includes coordination of movement to music, and cardiovascular fitness level determination using heart rate measurements.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring.

**FAR 155 Swimming: Stroke Development**

1 credit hour/ 2 periods (2 lab)

Swimming lessons for both the novice and advanced swimmer in the development and/or refinement of a wide variety of strokes. Includes orientation to the aquatic environment, rhythmic breathing, water and deep water entry, and treading water. Also includes front and back crawl, backstroke, breaststroke, sidestroke, butterfly, underwater swimming, turns, and diving.

Offered: Spring.

**FAR 160 Lifeguarding**

1 credit hour/ 2 periods (2 lab)

Introduction to the profession of life guarding. Includes life saving strokes, rescues, surveillance, and safety prevention.

*Prerequisite(s): Enrollment in American Red Cross Basic First Aid and CPR for the professional rescuer or concurrent enrollment is required before enrolling.*

Information: Prior or concurrent enrollment in American Red Cross Basic First Aid and CPR for the professional rescuer is required to before enrolling in this course. May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FAR 161 Beginning T'ai-chi Chuan**

1 credit hour/ 2 periods (2 lab)

Basic techniques of Yang style T'ai-Chuan, a form of martial arts. Includes an introduction to and principles of T'ai-chi; T'ai-chi for a healthier life style and self defense; and Yang Style Short Form.

Information: This course is not intended for Fitness and Sports Science Majors.

Offered: Fall, Spring.

**FAR 170 Basic Scuba**

1 credit hour/ 2 periods (2 lab)

Introduction to the open water swimming environment. Includes SCUBA diving equipment, physics, environmental biology of the ocean, and human physiology. Upon successful completion of the course, students are qualified for diving in open water and may choose to complete National Association of Scuba Educators (NASE) certification.

Information: Consent of instructor is required before enrolling in this course. Students are required to complete a 200 yard fitness swim test and a 10 minute minimum survival float.

Offered: May not be offered this year, check class schedule.

**FAR 180 Beginning West Coast Swing**

1 credit hour/ 2 periods (2 lab)

Introduction to West Coast Swing. Includes an overview of West Coast Swing, dance techniques, and beginning level moves.

Offered: May not be offered this year, check class schedule.

**FAR 181 Intermediate West Coast Swing**

1.5 credit hours/ 3 periods (3 lab)

Continuation of the fundamentals of West Coast Swing. Includes intermediate techniques and skill development in dance moves.

Offered: May not be offered this year, check class schedule.

**FAR 183 Beginning Country Western Dance**

1 credit hour/ 2 periods (2 lab)

Introduction to country western dance for the beginner. Includes basic steps, turns, techniques and skill development.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FAR 184 Intermediate Country Western Dance**

1.5 credit hours/ 3 periods (3 lab)

Country western dance at the intermediate level. Includes dance patterns, styles, and performance transformation.

Information: May be taken four times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

**FAR 185 Advanced Country Western Dance**

1.5 credit hours/ 3 periods (3 lab)

Country western dance at the advanced level. Includes dance patterns, dance execution, and performance techniques.

Information: May be taken four times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

**FAR 186 Ballroom/Latin Dance**

1 credit hour/ 2 periods (2 lab)

Introduction to ballroom and Latin dancing. Includes basic steps, turns and varied techniques of traditional and modern dances such as the foxtrot, waltz, swing, tango, cha cha, rumba, and mambo. Also includes skill development in posture, balance, control, flexibility, endurance and coordination.

Offered: Fall, Spring, Summer.

**FAR 187 Beginning Salsa Dance**

1 credit hour/ 2 periods (2 lab)

Introduction to salsa dancing and the basic steps to help you feel confident in order to dance socially and in public. Includes history of salsa, dance terminology, key components, survival skills, essential protocols, partnering and specific techniques, developing stamina, strength, and balance, organizing dancing patterns into complete routines, and learning to improvise.

Information: This course is not intended for competitive Salsa dance.

Offered: Fall, Spring.

**FAR 188 Intermediate Salsa Dance**

1.5 credit hours/ 3 periods (3 lab)

Continuation of FAR 187. Includes continued skill development in salsa dancing, dance terminology, key components of salsa dance, essential protocols, appropriate partnering techniques, specific techniques, developing stamina, strength, and balance, and developing a personal style.

Information: Completion of FAR 187 or consent of instructor is required before enrolling in this course. This course is intended for social, not competitive, Salsa dance. If competition is the student's goal, proper basics are covered and expectations of judging are discussed.

Offered: Fall, Spring.



## FITNESS AND SPORT SCIENCES

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### FSS 105 Beginning In-Line Skating

1 credit hour/ 2 periods (2 lab)

Basics of in-line skating. Includes protective equipment, rules of the road, safety on skates, stretching and cool down, getting comfortable on in-line skates, moving on in-line skates, beginning movements or stride one, beginning braking, beginning turning, edge control, stride two, and practical skating. Offered: May not be offered this year, check class schedule.

### FSS 106 Intermediate In-Line Skating

1.5 credit hours/ 3 periods (3 lab)

In-line skating for the experienced skater. Includes review of equipment needs and safety rules, fitness preparation, and intermediate level movements related to downhill and uphill skating.

Information: FSS 105 or consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### FSS 110 Beginning Golf

1 credit hour/ 2 periods (2 lab)

Introduction to golf for the beginner. Includes grips, stance, swing, hitting the different clubs, pitch and chip shots, putting, and rules and etiquette of the game.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring, Summer.

### FSS 111 Intermediate Golf

1.5 credit hours/ 3 periods (3 lab)

Development of skills introduced in the beginning class. Includes grip, stance, swing, driving, chipping, rules, and etiquette.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall, Spring, Summer.

### FSS 112 Advanced Golf

1.5 credit hours/ 3 periods (3 lab)

Advanced skills in golf and development of the mental aspects of the game. Includes techniques for playing hazards, difficult lies, and making special shots.

Information: May be taken four times for a maximum of six credit hours.

Offered: Spring.

### FSS 113 Beginning Racquetball

1 credit hour/ 2 periods (2 lab)

Introduction to racquetball for the beginner and novice. Includes equipment, safety, game rules, techniques, and skill development. Also includes singles, cut-throat, and doubles play.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall.

### FSS 114 Intermediate Racquetball

1.5 credit hours/ 3 periods (3 lab)

Intermediate level skill development and play. Includes a review of the beginning level skills. Also includes rules, etiquette, singles and doubles strategies, and tournament play.

Information: May be taken four times for a maximum of four credit hours.

Offered: Spring.

### FSS 116 Beginning Tennis

1 credit hour/ 2 periods (2 lab)

Introduction to the basic skills and rules of tennis. Includes forehand, backhand, serve, and volley. Also includes strategy, courtesy, selection of equipment, and general rules for playing singles and doubles.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring, Summer.

### FSS 117 Intermediate Tennis

1.5 credit hours/ 3 periods (3 lab)

Refinement of tennis skills for the developing player. Includes running forehand drive, running backhand drive, service, volley, drop shot, overheads, strategies, and analysis of opponent's game. Also includes scoring, handling physical and mental stress, avoiding injury, and tournament play.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall, Spring.

### FSS 118 Advanced Tennis

1.5 credit hours/ 3 periods (3 lab)

Progressive skill development for the advanced tennis player. Includes selection of new equipment, and skills needed for a variety of different types of shots used in the game.

Information: May be taken four times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

### FSS 119 Track and Field

1.5 credit hours/ 3 periods (3 lab)

Fundamental techniques of track and field. Includes introduction to protocols and equipment, rules and safety, skill assessment, technique and training for one field event area, officiating and regulations, and demonstration of skills and rules.

Information: May be taken four times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

### FSS 120 Beginning Soccer

1 credit hour/ 2 periods (2 lab)

Introduction to soccer for the beginner. Includes passing, receiving and controlling, dribbling and maintaining control, heading, throw-ins, corners, goal kicks, and other special situations. Also includes shooting, defensive techniques, rules of the game, common terminology, and tactics of play.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

### FSS 121 Advanced Soccer

1.5 credit hours/ 3 periods (3 lab)

Advanced skills for soccer. Includes passes and control, shooting, dribbling, man to man defense, zone defense, creating space, rules, and physical demands of the game.

Information: May be taken four times for a maximum of six credit hours.

Offered: Spring.

### FSS 125 Beginning Basketball

1 credit hour/ 2 periods (2 lab)

Introduction to the fundamentals of basketball. Includes history of the game, rules, and fundamentals skills.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring, Summer.

### FSS 126 Intermediate Basketball

1.5 credit hours/ 3 periods (3 lab)

Development of techniques for students with basic basketball skills. Includes fundamentals of footwork and balance, jumping, rebounding, and guarding. Also includes officiating techniques, and development of basic defenses and offenses used in basketball.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall, Spring.

### FSS 127 Advanced Basketball

1.5 credit hours/ 3 periods (3 lab)

Advanced skills for basketball. Includes game-like conditions, special plays, and advanced game strategies.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall.

### FSS 128 Beginning Baseball

1 credit hour/ 2 periods (2 lab)

Introduction to the fundamentals and basic skills of baseball. Includes infield, outfield, catching, pitching, and offensive and defensive strategies.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

### FSS 129 Beginning Softball

1 credit hour/ 2 periods (2 lab)

Introduction to slow and fast pitch softball. Includes equipment and field, defensive and offensive skills, pitching, strategies, rules and officiating, and defensive strategy.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

### FSS 130 Advanced Softball

1.5 credit hours/ 3 periods (3 lab)

Progressive skills development for the advanced softball player. Includes defensive strategies, offensive strategies, mental play strategies, and team concept and competition.

Information: May be taken six times for a maximum of nine credit hours.

Offered: May not be offered this year, check class schedule.

### FSS 131 Beginning Volleyball

1 credit hour/ 2 periods (2 lab)

Introduction to volleyball for the beginning player. Includes basic skills, rules, and team systems and strategies.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring.

### FSS 132 Intermediate Volleyball

1.5 credit hours/ 3 periods (3 lab)

Introduction to volleyball for the player with previous volleyball experience. Includes refinement of basic skills, introduction of advanced skills, team systems.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall, Spring.



### **FSS 133 Advanced Volleyball**

1.5 credit hours/ 3 periods (3 lab)

Volleyball for the skilled and experienced player. Includes refining skills and introducing advanced techniques and team systems.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall, Spring.

### **FSS 134 Advanced Baseball**

1.5 credit hours/ 3 periods (3 lab)

Introduction to advanced tactics and competition in baseball. Includes advanced instruction in base running, fielding, hitting, and offensive and defensive strategies.

Information: May be taken four times for a maximum of four credit hours. FSS 128 is required before enrolling in this course.

Offered: Fall, Summer.

### **FSS 135 Beginning Wrestling**

1 credit hour/ 2 periods (2 lab)

Introduces the sport of intercollegiate wrestling. Includes fundamentals of combative wrestling.

Recommendation: Consult instructor for skill status requirements before enrolling in this course.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

### **FSS 136 Intermediate Wrestling**

1.5 credit hours/ 3 periods (3 lab)

Continuation of FSS 135. Includes introduction to intermediate skills levels of combative wrestling.

Information: May be taken four times for a maximum of six credit hours. FSS 135 is required before enrolling in this course. Consult instructor for alternative prerequisites before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### **FSS 137 Advanced Wrestling**

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of FSS 136. Includes techniques and skill development for the experienced wrestler, college-level tactics, and advanced strategies under match-like conditions.

Information: May be taken four times for a maximum of eight credit hours. FSS 136 is required before enrolling in this course. Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall.

### **FSS 148 Spinning**

1.5 credit hours/ 3 periods (3 lab)

Individually paced physical stationary bike riding. Includes fundamental techniques of spinning and mental conditioning to maximize benefits from non-impact cardiovascular workouts set to music.

Offered: Summer.

### **FSS 150 Fitness Activities**

1 credit hour/ 2 periods (2 lab)

Introduction to fitness activities for the beginner. Includes the importance of exercise, proper nutrition, effect of attitudes on health, and the basics of the physiology of exercise. Also includes participation in stretching exercises, walking, jogging, dancing and biking.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

### **FSS 151 Sports Conditioning**

1 credit hour/ 2 periods (2 lab)

Conditioning class for students desiring more intense conditioning for individual and/or team sports. Includes endurance activities, dynamic stretching and warm-up techniques, sport related fitness drills (agility, balance, coordination).

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring, Summer.

### **FSS 152 Independent Fitness Activity**

1 credit hour/ 2 periods (2 lab)

Designed for students who are actively engaged in a fitness activity, but are unable to meet regularly scheduled physical education classes.

Information: At least one physical education activity class or consent of instructor is required before enrolling in this course. May be taken four times for a maximum of four credit hours.

Offered: Fall.

### **FSS 153 Plus-sized Exercise**

1 credit hour/ 2 periods (2 lab)

Beginning aerobic exercise, toning, and stretching for individuals desiring to use exercise for weight control. Includes student determination of appropriate exercise intensity levels and modifications during activities.

Information: May be taken four times for a maximum of four credit hours. This class is intended for those who are 25 or more pounds overweight.

Offered: Fall, Spring

### **FSS 155 Athletic-Academic Success**

2 credit hours/ 2 periods (2 lec.)

Survey of successful educational strategies in support of individual academic plans, career goals and personal decision making. Includes taking the first step, goals and time, creative thinking, memory, note-taking skills, disarm tests, and communicating. Also includes health and nutrition, diversity, and resources.

Information: May be taken three times for a maximum of six credit hours.

Offered: Fall, Spring.

### **FSS 156 Sport Conditioning Through Plyometrics**

1 credit hour/ 2 periods (2 lab)

Introduction to sport specific conditioning through plyometrics. Includes techniques of stretching, use of plyometrics, plyometric drills, sport specific plyometrics, and designing a program.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Summer.

### **FSS 174 Yoga**

1 credit hour/ 2 periods (2 lab)

Introduction to stress reduction through Yoga. Involves stretching, basic postures, breathing, and relaxation techniques to improve overall wellness.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring, Summer.

### **FSS 175 Yoga and Meditation**

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of FSS 174. Includes emphasis on meditation, concentration techniques, and yoga philosophy. Includes complex variations of basic postures, new challenging postures, breathing and relaxation techniques, and exploration of various paths of yoga, styles, hatha yoga, and yoga subtle anatomy to cultivate and focus upon the inner connection among body, breath, mind and spirit.

Information: FSS 174 or consent of instructor is required before enrolling in this course. Student must have no major physical limitations, at least one year of yoga experience or an established daily yoga routine.

Offered: May not be offered this year, check class schedule.

### **FSS 176 Aerobics**

1 credit hour/ 2 periods (2 lab)

Introduction to cardiovascular and muscular exercises. Includes walking, jogging, stretching, calisthenics, and muscle toning. Also includes cool down and relaxation exercises.

Information: May be taken eight times for a maximum of eight credit hours.

Offered: Fall, Spring, Summer.

### **FSS 179 Step Aerobics**

1 credit hour/ 2 periods (2 lab)

High intensity, low impact program that involves stepping on and off a platform repeatedly, while simultaneously performing upper body movements. Includes both beginning and advanced students at varying intensity levels.

Offered: Fall, Spring, Summer.

### **FSS 180 Strategies for Weight Management**

1 credit hour/ 1 period (1 lec.)

Current research, information, and support to make lifestyle changes to manage weight and improve overall wellness. Includes personal assessment, stages of change, basic nutritional guidelines, exercise/activity guidelines and safety precautions, and developing personal strategies.

Information: May be taken four times for a maximum of four credit hours.

Offered: Spring.

### **FSS 181 Stretch and Tone**

1 credit hour/ 2 periods (2 lab)

Muscular strength and endurance workout designed to tone and strengthen the entire body. Includes fundamental exercises, increase in repetitions, and increase in resistance.

Information: May be taken six times for a maximum of six credit hours.

Offered: Fall, Spring, Summer.

### **FSS 185 Beginning Weight Training and Cardiovascular Fitness**

1 credit hour/ 2 periods (2 lab)

Introduction to a balanced fitness training program designed for the beginner. Includes evaluation of personal fitness status and needs, basic fitness techniques, muscle groups and methods of development, weight training role in fitness, cardiovascular training, and development of a personalized routine.

Information: May be taken six times for a maximum of six credit hours.

Offered: Fall, Spring, Summer.

### **FSS 186 Intermediate Weight Training and Cardiovascular Fitness**

2 credit hours/ 4 periods (4 lab)

Exploration into the range and magnitude of weight and cardiovascular training. Includes orientation, personal fitness assessment, personal training session, health fitness activities, lab participation, and an evaluation of personal fitness.

Information: May be taken six times for a maximum of twelve credit hours.

Offered: Fall, Spring, Summer.

**FSS 187 Advanced Weight Training and Cardiovascular Fitness**

2 credit hours/ 4 periods (4 lab)

Intensive weight training and cardiovascular activities for physically qualified individuals. Includes advanced training and development of higher degree skill techniques for the chest, back, shoulders, legs, biceps, triceps, abdominals, and forearms.

Information: May be taken four six for a maximum of twelve credit hours.

Offered: Fall, Spring, Summer.

**FSS 188 Strength and Conditioning for Sport**

1.5 credit hours/ 3 periods (3 lab)

Advanced sport specific program of strength and conditioning designed to enhanced athletic performance. Includes focus on development of power, strength, flexibility, agility, balance and dynamic correspondence.

Offered: Fall, Spring, Summer.

**FSS 199 Introduction to Co-op:Coaching or Physical Education**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education which provides for success in securing and retaining a job related to subject area. Includes communication skills, time and energy management, stress and its management, and careers. Also includes placing yourself on the job market, principles, theories, and practices in the career field, and problems in the work situation.

Corequisite(s):FSS 199WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**FSS 199WK Co-op Work: Coaching or Physical Education**

1-3 credit hours/ 5-15 periods (5-15 lab)

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with student and their supervisor.

Corequisite(s):FSS 199

Information: May be taken two times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

**FSS 201 Introduction to Exercise Science and Physical Education**

3 credit hours/ 3 periods (3 lec.)

Disciplines and professions associated with exercise science and physical education. Includes an overview of historical and philosophical foundations.

Offered: May not be offered this year, check class schedule.

**FSS 205 Theory of Coaching Baseball**

2 credit hours/ 2 periods (2 lec.)

Advanced instruction in the theory of coaching advanced baseball techniques and methods, role of the coach, game management, and improving performance.

Offered: Spring.

**FSS 208 Professional Activities: Aerobics and Group Fitness**

2 credit hours/ 3 periods (1 lec., 2 lab)

Aerobics skills and teaching methods for the Fitness and Sport Sciences major. Includes introduction to components of aerobic fitness, teaching an aerobic class, choreography basics, and strength training. Also includes group related fitness activities, specific populations and health concerns, and legal and professional responsibilities.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Spring.

**FSS 210 Pro-Act Baseball**

2 credit hours/ 3 periods (1 lec., 2 lab)

Professional Activities: Baseball Baseball skills and teaching and coaching methods for the Physical Education Major. Includes mechanics of hitting and pitching, fielding and team defense, baserunning, and game situations.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 213 Professional Activities: Basketball**

2 credit hours/ 3 periods (1 lec., 2 lab)

Basketball skills and teaching methods for the Fitness and Sport Sciences major. Includes passing, shooting, footwork, jumping, ball handling, individual and team offense and defense, and skill progressions and class lesson plans.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 218 Professional Activities: Weight Training**

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to basic resistance training principles. Includes history, anatomy and physiology, biomechanics, weight training principles and concepts, program development and assessment, and programming.

Information: Course is intended for the Fitness or Physical Education majors or those pursuing a Professional or Coaching certificate. Student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Fall.

**FSS 223 Professional Activities: Racquetball**

2 credit hours/ 3 periods (1 lec., 2 lab)

Racquetball skills and teaching methods for the Fitness and Sport Sciences major. Includes basic techniques and methods, offensive and defensive play, serve strategy, learning theory, and evaluation methods.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 224 Professional Activities: Self Defense**

2 credit hours/ 3 periods (1 lec., 2 lab)

Self defense for the Fitness and Sport Sciences major. Includes skill to recognize, avoid, and eliminate potentially dangerous situations, defending yourself, reporting attacks and support agencies for victims of attack.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 225 Professional Activities: Soccer**

2 credit hours/ 3 periods (1 lec., 2 lab)

Soccer for the Fitness and Sport Sciences major. Includes developing soccer skills and conditioning, skills and concepts for soccer, peer instruction, four principals of soccer, and age appropriate training.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 227 Professional Activities: Softball**

2 credit hours/ 3 periods (1 lec., 2 lab)

Softball skills and teaching methods for the Fitness and Sport Sciences major. Includes mechanics of hitting and pitching, fielding and team defense, baserunning, and game situations.

Information: To be successful in the course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 230 Professional Activities: Tennis**

2 credit hours/ 3 periods (1 lec., 2 lab)

Principles of teaching and coaching tennis. Includes skill development, rules, strategies for singles and doubles play, and court etiquette.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 231 Professional Activities: Track and Field**

2 credit hours/ 3 periods (1 lec., 2 lab)

Track and field skills and teaching methods for the Fitness and Sport Sciences major. Includes overview of coaching philosophies, organizing a track and field program, fundamental training principles, biomechanics, strength training and plyometrics, and jumping, running, and throwing events. Also includes team aspects of track and field, meet management and administration, injury prevention.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 232 Professional Activities: Volleyball**

2 credit hours/ 3 periods (1 lec., 2 lab)

Principles of teaching and coaching the sport of volleyball. Includes skill development, skill progressions, instructional methods, basic rules, and strategies.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 234 Fundamentals of Exercise Science**

3 credit hours/ 3 periods (3 lec.)

Overview of how the various systems of the body interact to help adapt to exercise and movement. Topics are specifically designed to provide Physical Education and Fitness majors with basic understanding of the structure and function of human anatomy and physiology. Includes the skeletal support system, muscular system structure, nervous system, metabolism, endocrine system, cardiovascular system, and the respiratory system.

Recommendation: Assessment scores at the level to enroll in REA 112, WRT 101, and MAT 086 or higher are strongly recommended before enrolling in this course.

Offered: Fall, Spring.

**FSS 236 Communication and Exercise Adherence**

1 credit hour/ 1 period (1 lec.)

Communication skills and interviewing techniques for personal trainers. Includes theories of motivation, the transtheoretical model and stages of change, and communication techniques.

Information: This course is intended for the Fitness Professional program and continuing education for fitness professionals, coaches, and physical education teachers. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Fall.

**FSS 238 Introduction to Sports Injury Management**

2 credit hours/ 2 periods (2 lec.)

Intro to principles and techniques of preventing, treating and rehabilitating sports related injuries. Includes overview of sports injury management, recognition of common sports injuries, and taping/wrapping techniques.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Fall, Spring.

**FSS 241 Nutrition for Exercise and Sport**

3 credit hours/ 3 periods (3 lec.)

Examination of the relationship between nutrition and the human body. Includes optimal nutrition, energy expenditure, body composition assessment, regulating the body through exercise, and recent research findings.

Prerequisite(s): WRT 100 or 106, and MAT 086 or satisfactory score on the writing and mathematics assessment tests.

Information: This course is intended for the Fitness Professional and Professional Development for coaches. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106. This course is intended for the Fitness

Offered: Fall.

**FSS 242 Games and Activities for the School-Aged Child**

3 credit hours/ 3 periods (3 lec.)

Basic skills in and knowledge of methods and materials for teaching physical activities, games, and sports to the school-aged (K-8) child. Includes program development and planning, classroom management techniques, legal considerations, activities, and modifications for the special child.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

**FSS 243 Teaching Physical Activities**

3 credit hours/ 5 periods (2 lec., 3 lab)

Overview of the historical development, the philosophical foundations, and the socio-cultural forces that shape and influence the teaching of physical education. Includes historical perspectives, secular trends and the impact on physical education programs, federal legislation and implications, national standards, and legal issues. Also includes the practical application, on an individual basis, of previously studied theory and the collection of data for future theoretical interpretation. Exposes students to observational experiences in the public school setting. Designed to provide students with opportunities to observe locomotor skills, work with individuals and small groups, evaluate motor skill proficiency and be a positive role model for children.

Prerequisite(s): FSS 279 or concurrent enrollment.

Recommendation: Student assessment score at the level to enroll in WRT 101 or higher is strongly recommended.

Information: This course is intended for physical education majors or current educators interested in continuing education. Students will be expected to comply with security measures in place at the local schools included in the observation during the time of enrollment. This may include fingerprinting and wearing identification badges.

Offered: Fall.

**FSS 243A Teaching Physical Activities: Principles**

2 credit hours/ 2 periods (2 lec.)

Overview of the historical development, the philosophical foundation, and the socio-cultural forces that shape and influence the teaching of physical education. Includes historical perspectives, secular trends and the impact on physical education programs, federal legislation and implications, national standards, and legal issues.

Prerequisite(s): FSS 279 or concurrent enrollment.

Recommendation: Student assessment score at the level to enroll in WRT 101 or higher is strongly recommended.

Information: FSS 243A and 243B together constitute FSS 243. This course is intended for physical education majors or current educators interested in continuing education.

Offered: Fall.

**FSS 243B Teaching Physical Activities: Observation**

1 credit hour/ 3 periods (3 lab)

The practical application, on an individual basis, of previously studied theory and the collection of data for future theoretical interpretation. This course will expose students to observational experiences in the public school setting. It is designed to provide future physical educators with opportunities to observe locomotor skills, work with individuals and small groups of students, evaluate motor skill proficiency and be a positive role model for children.

Prerequisite(s): FSS 279 or concurrent enrollment.

Recommendation: Student assessment scores at the level to enroll in WRT 101 or higher is strongly recommended before enrolling in this course.

Information: FSS 243A and 243B together constitute FSS 243. This course is intended for physical education majors or current educators interested in continuing education. Students will be expected to comply with security measures in place at the local schools included in the observation during the time of enrollment. This may include fingerprinting and wearing identification badges.

Offered: Fall.

**FSS 250 Sport First Aid**

3 credit hours/ 3 periods (3 lec.)

Basic first aid skills in the sport setting designed to help coaches develop an awareness of sport injuries, and administer appropriate first aid. Includes basic sport first aid, protocols for specific injuries, and standard of care.

Information: A valid CPR certification is required before enrolling in this course. This course will use materials for and lead to certification by the American Sport Education Program (ASEP) and are mandatory for this course. May be taken two times for a maximum of six credit hours.

Offered: Summer.

**FSS 260 Business Practices for the Personal Trainer**

1 credit hour/ 1 period (1 lec.)

Practices associated with creating and managing a personal training business. Includes how to develop a business plan, marketing services, and legal and professional responsibilities.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106. This course is intended for the Fitness Professional program and continuing education for fitness professionals, coaches, and physical education teachers.

Offered: Spring.

**FSS 262 Personal Trainer: Special Populations**

1 credit hour/ 1 period (1 lec.)

Exercise management for persons with chronic diseases. Includes medical model health appraisal, allied health profession referrals, and chronic disease and disabilities.

Recommendation: It is highly recommended that students who are not currently certified as personal trainers should be in the second or later semester of the certificate program before enrolling in this course.

Information: This course is intended for students in the Fitness Professional Certificate program or for current physical education teachers or healthcare providers for continuing education credit.

Offered: Spring.

**FSS 270 Advanced Principles for Athletic Conditioning**

1 credit hour/ 1 period (1 lec.)

Advanced theory and application of resistance training principles. Includes safety and personal health issues, strength and conditioning principles, testing and evaluation exercise techniques, and program design.

Recommendation: Completion of FSS 218 and 276 before enrolling.

Information: May be taken three times for a maximum of three credit hours. This course is intended for the Fitness Professional program and continuing education for fitness professionals, coaches, and physical education teachers. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Spring.

**FSS 271 Sport Psychology**

3 credit hours/ 3 periods (3 lec.)

Development of the basics of sport psychology. Includes psychological perspective, psychology skills for coaches, psychological skills for athletes, and implementing skills training.

Information: This course is intended for the Coaching program and continuing education for fitness professionals, coaches, and physical education teachers. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Fall, Spring.

**FSS 272 Coach Techniques/Practices**

3 credit hours/ 3 periods (3 lec.)

Coaching Techniques and Practices Concepts and strategies for teaching athletes both new skills and fine tuning of existing skills. Includes preparing to teach skills, presenting, developing and maintaining skills, and cognitive processes involved in skills.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Fall, Summer.

**FSS 273 Sport Physiology**

3 credit hours/ 3 periods (3 lec.)

Principles of muscular, energy and endurance fitness training for peak performance. Includes focus on individual differences, muscular fitness components, energy systems, performance evaluation and training program development.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Spring.

**FSS 276 Personal Trainer: Muscular Strength, Endurance, Flexibility**

3 credit hours/ 4 periods (2 lec., 2 lab)

Assessment and interpretation of results for individualized programs designed for muscular strength, endurance and flexibility. Includes pre-activity screening, assessment, interpretation of results, manipulation of variables in program design, and periodization.

Corequisite(s): FSS 218

Information: This course requires physical activity and is intended for students



pursuing the Fitness Professional or Coaching Certificate or the Physical Education major. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106 and reading ability equivalent to the completion of REA 091.

Offered: Fall.

### FSS 277 Personal Trainer: Cardiovascular Endurance/Body Composition

3 credit hours/ 4 periods (2 lec., 2 lab)

Assessment and interpretation of testing results for individualized program design for cardiovascular training, and the skill development of body composition assessment techniques. Includes assessment issues, development of SMART goals, program development, and special considerations.

Information: This course requires physical activity and is intended for students pursuing the Fitness Professional Certificate. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106 and reading ability equivalent to the completion of REA 091.

Offered: Spring.

### FSS 278 Fitness Professional Practices

2 credit hours/ 4 periods (1 lec., 3 lab)

Intended for students preparing to be personal trainers. Includes hands-on experience working with student-clients enrolled in other FSS courses by helping develop appropriate exercise goals, providing motivation, giving supplemental nutritional information, and demonstrating exercise techniques.

Prerequisite(s): FSS 276 and 277 or concurrent enrollment.

Offered: May not be offered this year, check class schedule.

### FSS 279 Motor Development

2 credit hours/ 2 periods (2 lec.)

Examination of development changes in motor patterns for children and adults. Includes introduction to motor development, prenatal development concerns, growth and maturation, infant reflexes and stereotypes, voluntary movements in infancy, perceptual-motor development, movement and changing sense of vision, cognitive and motor development and fine motor development. Includes effects of early stimulation, social and motor development, psychological changes, motor assessment, and planning and conducting a motor development program.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: Fall.

### FSS 280 Lifestyle and Weight Management Consultant

1 credit hour/ 1 period (1 lec.)

Emphasis on evaluating fad diets, educating clients on proven techniques for weight loss (diet and exercise), and supporting clients with specific activities at various stages of change. Includes the trans-theoretical model, basic nutritional guidelines, exercise/activity guidelines and safety precautions, and developing personal strategies.

Information: This course is intended for the Fitness Professional program and continuing education for fitness professionals, coaches, and physical education teachers. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Recommendation: It is highly recommended that students have successfully completed or are concurrently enrolled in FSS 236 and a Nutrition course.

Offered: Fall

### FSS 281 Personal Trainer Exam Preparation

1 credit hour/ 1 period (1 lec.)

Summation of the curriculum presented in the Fitness Professional Certificate program. Includes exam content areas, study strategies, and test taking strategies to prepare for a nationally recognized certificate examination for personal trainers.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### FSS 284 Conditioning and Training the Adolescent Athlete

2 credit hours/ 2 periods (2 lec.)

Theory and application of conditioning and training for adolescents. Includes components of strength and conditioning, practical application, programming, and periodization.

Information: This course is intended for the Coaching Certificate program and continuing education for fitness professionals, coaches, and physical education teachers. To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

### FSS 285 Principles of Athletic Coaching

3 credit hours/ 3 periods (3 lec.)

Introduction to the principles of athletic coaching. Includes principles of behavior, teaching, physical training, and management.

Information: To be successful in this course the student should have basic writing skills equivalent to the completion of WRT 100 or 106. This course will use materials for and lead to certification by the American Sport Education Program (ASEP) and are mandatory for the course.

Offered: Spring.

### FSS 286 Sports Officiating

2 credit hours/ 2 periods (2 lec.)

Familiarization with and application of the rules of various sports from the standpoint of an official. Includes introduction to the art of officiating, discussion of interpretation of rules for each sport, officiating duties, and guest officials and coaches from each sport. Also includes actual experience through service in the college's intramural program and other agencies.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

### FSS 289 Sports Administration

2 credit hours/ 2 periods (2 lec.)

Introduction to the theory, concepts, and practices for effective sports program administration. Includes planning for better coaching, organizing varied elements, funding, organizing competition, developing personal leadership skills, designing controls for sports programs, and making effective decisions.

Information: To be successful in this course, the student should have basic writing skills equivalent to the completion of WRT 100 or 106.

Offered: May not be offered this year, check class schedule.

### FSS 296 Independent Study in Fitness and Sport Sciences

3 credit hours/ 3 periods (3 lec.)

Students independently continue their academic development in health, physical education, recreation, coaching, dance or fitness, with the help of faculty member.

Information: May be taken two times for a maximum of six credit hours. Consent of instructor is required before enrolling in this course. This course does not transfer to the three state universities.

Offered: Fall, Spring, Summer.

### FSS 299 Introduction to Co-op: Fitness Professional

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education which provides for success in securing and retaining a training job related to subject area. Includes communication skills, time and energy management, stress and its management, and careers. Also includes placing yourself on the job market, principles, theories, and practices in the career field, and problems in the work situation.

Corequisite(s): FSS 299WK

Information: May be taken two times for a maximum of two credit hours. This course is intended for the Fitness Professional program and may be taken in the 2nd semester or completion of FSS 276 or 277 before enrolling in this course.

Offered: Fall, Spring.

### FSS 299WK Co-op Work: Fitness Professional

2 credit hours/ 10 periods (10 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors.

Corequisite(s): FSS 299

Information: May be taken two times for a maximum of four credit hours.

Offered: Fall, Spring.

## FOOD SCIENCE AND NUTRITION

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### FSN 057 Vegetarian Dietary Cookery

2 credit hours/ 3 periods (1 lec., 2 lab)

The study of food combinations from vegetable sources which supply adequate nutrition. Includes demonstrations in the planning and preparation of foods from plants which supply essential nutrients.

Offered: May not be offered this year, check class schedule.

### FSN 113 Food Study

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the composition of various food types. Includes methods of preparing foods to be flavorful, attractive and nutritious. Also includes emphasis on selection and application of proper nutrients for maintenance of health in persons of all ages.

Offered: May not be offered this year, check class schedule.

### FSN 127IN Human Nutrition and Biology

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles of nutrition presented in the context of human biology. Includes chemistry, digestion, absorption, and metabolism of nutrients. Also includes biological and nutritional perspectives on various health issues such as cardiovascular disease, hypertension, cancer, diabetes, and osteoporosis.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously. Same as BIO 127IN.

Offered: Fall, Spring, Summer.



**FSN 154 Nutrition**

3 credit hours/ 3 periods (3 lec.)

Examination of nutrients and their use by the body for growth and development. Includes maintenance of health through proper diet.

Information: Same as SSE 154.

Offered: Fall, Spring, Summer.

**FSN 241 Principles of Human Nutrition**

3 credit hours/ 3 periods (3 lec.)

Concepts and scientific principles of human nutrition. Includes health promotion and concepts for conveying accurate nutrition information in a professional setting. Addresses therapeutic nutrition principles for treatment of common health conditions. Includes exploration of food sources of nutrients, basic metabolism of nutrients in the human body, relationship between diet and other lifestyle factors, use of supplements, current recommendations for intake or assessment of nutritional status.

Information: One year high school chemistry with a C or better, or CHM 130LB, or BIO 100IN, or 156IN, or 181IN, or consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

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**FOUNDATIONS FOR PERSONAL CHANGE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**FPC 101 Work and Learning in America**

1 credit hour/ 1 period (1 lec.)

Development of career and learning objectives. Includes learning and the world of work, careers in the 21st century, and skill development in context. Also includes a focus on the common requirements of all jobs, the skills basic to employment success, and the formal and informal learning necessary for career advancement.

Offered: May not be offered this year, check class schedule.

**FPC 102 Reading for Information**

1 credit hour/ 1 period (1 lec.)

Development of reading skills appropriate to career objectives. Includes reading and the world of work, skills of workplace reading, and skill development in context. Also includes a focus on interpreting the printed work in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 103 Applied Mathematics**

1 credit hour/ 1 period (1 lec.)

Development of mathematical skills appropriate to career objectives. Includes mathematics and the world of work, problem solving strategies, and skill development in context. Also includes a focus on basic calculations in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 104 Writing at Work**

1 credit hour/ 1 period (1 lec.)

Development of writing skills appropriate to career objectives. Includes writing and the world of work, community through the written word, and skill development in context. Also includes a focus on practical writing in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 105 Applied Technology**

1 credit hour/ 1 period (1 lec.)

Development of technology skills appropriate to career objectives. Includes technology and the world of work, understanding technological principles, and skill development in context. Also includes a focus on basic principles of technology in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 106 Observation at Work**

1 credit hour/ 1 period (1 lec.)

Development of observation skills appropriate to career objectives. Includes observation, problem solving, and the world of work, strategies for observing and interpreting, and skill development in context. Also includes a focus on observing processes and behaviors at work to solve problems and make decisions.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 107 Teamwork**

1 credit hour/ 1 period (1 lec.)

Development of teamwork proficiency appropriate to career objectives. Includes teamwork on the job, essentials for teamwork success, and skill development in context. Also includes a focus on task and relationship skills in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 108 Locating Information**

1 credit hour/ 1 period (1 lec.)

Development of skills in locating information from graphical displays appropriate to career objectives. Includes locating information in the world of work, data and types of data displays, and skill development in context. Also includes a focus on basic data formats in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 109 Listening**

1 credit hour/ 1 period (1 lec.)

Development of listening skills appropriate to career objectives. Includes listening and the world of work, hearing, listening, and interpreting, and skill development in context. Also includes a focus on literal comprehension, interpretation, and critical listening in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 110 Speaking English on the Job**

1 credit hour/ 1 period (1 lec.)

Development of spoken English skills appropriate to career objectives. Includes spoken English and the world of work, key issues in spoken English, and skill development in context. Also includes a focus on basic grammar, diction, and vocabulary in a workplace context.

Information: May be taken four times for a maximum of four credit hours.

Offered: May not be offered this year, check class schedule.

**FPC 150 Problem Solving in the Workplace**

3 credit hours/ 3 periods (3 lec.)

Techniques for analyzing and solving problems associated with providing services and producing goods. Includes contexts for analysis, business and industry challenges and problems, techniques to define specific problems, techniques of analysis, and problem solving protocols and strategies.

Offered: May not be offered this year, check class schedule.

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**FRENCH**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**FRE 050 Social and Cultural French: Food Traditions and Dining**

2 credit hours/ 2 periods (2 lec.)

Introduction to the French language presented in the context of food traditions and dining. Includes food in the culture of France, language of groceries and ingredients, and conversation for dining.

Offered: May not be offered this year, check class schedule.

**FRE 051 Social and Cultural French: Travel**

2 credit hours/ 2 periods (2 lec.)

Introduction to the French language presented in the context of travel, from planning a trip to returning home. Includes geography and traveling in France, words and phrases related to transportation, conversation for hotels, restaurants, and tourist services, and languages of health and hygiene.

Offered: May not be offered this year, check class schedule.

**FRE 052 Social and Cultural French: Cinema**

2 credit hours/ 2 periods (2 lec.)

Viewing and discussing French films from early experimentation to the present. Includes cultural values through cinema in France, major directors within cinema periods, and major films expressing modernism and contemporary French cinema.

Information: No prior knowledge of French is required, since sub-titles are provided.

Offered: May not be offered this year, check class schedule.

**FRE 055 Language Study and Travel in Spain, Italy, and France**

2 credit hours/ 2 periods (2 lec.)

Introduction to French, Italian, and Spanish language presented in the context of travel through these three countries. Includes lodging, money, and transportation terminology, culinary traditions, restaurants and markets, and travel destinations.

Information: Prior language knowledge is not required. Same as ITA/SPA 055.

Offered: May not be offered this year, check class schedule.

**FRE 101 Elementary French I**

4 credit hours/ 4 periods (4 lec.)

Introduction to the French language. Includes developing proficiency in listening, speaking, reading, and writing. Also includes French cultural traditions.  
Offered: Fall, Spring, Summer.

**FRE 102 Elementary French II**

4 credit hours/ 4 periods (4 lec.)

Continuation of FRE 101. Includes increased proficiency in listening, speaking, reading, and writing. Also includes French cultural traditions.

*Prerequisite(s):* FRE 101.

Offered: Fall, Spring, Summer.

**FRE 106 Beginning Conversation**

3 credit hours/ 3 periods (3 lec.)

Introduction to conversational French. Includes basic oral and written forms, simple grammatical structures to oral and written communication, simple interpersonal communicative interaction, various interpersonal transactions, and cultural perspectives. Also includes reading, writing, speaking, and listening skills with emphasis on oral communication.  
Offered: Fall.

**FRE 107 Intermediate Conversation**

3 credit hours/ 3 periods (3 lec.)

Continuation of FRE 106. Includes intermediate oral and written communication, complex grammatical structures, intermediate interpersonal communicative interaction through conversations, discuss, question, negotiate, narrate, and summarize concepts in the oral and written forms, and intermediate cultural perspectives. Also includes reading, writing, speaking, and listening skills with emphasis on oral communication.

*Prerequisite(s):* FRE 106.

Offered: Spring.

**FRE 201 Intermediate French I**

4 credit hours/ 4 periods (4 lec.)

Continuation of FRE 102. Includes an intensive review of grammar, in addition to reading selected authors and writing short compositions. Also includes extensive practice in speaking French.

*Prerequisite(s):* FRE 102.

Information: Prerequisites may be waived with two years of high school French. This course will be conducted primarily in French.

Offered: Fall, Spring.

**FRE 202 Intermediate French II**

4 credit hours/ 4 periods (4 lec.)

Continuation of FRE 201. Includes an emphasis on efficient and contemporary language usage.

*Prerequisite(s):* FRE 201.

Information: This course will be conducted primarily in French.

Offered: Fall, Spring.

**FRE 296 Independent Study in French**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent study in French literature, grammar, or special projects under the supervision of an instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring.

**GENERAL TECHNOLOGIES MATHEMATICS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**GTM 105 Applied Technical Mathematics**

3 credit hours/ 3 periods (3 lec.)

Applied geometry and trigonometry operations. Includes review of basic math operations, review of pre-algebra, elements of geometry, plane trigonometry, and practical applications.

*Prerequisite(s):* MAT 086 or required score on mathematics assessment test.

Offered: Fall, Spring, Summer.

**GEOGRAPHY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**GEO 093 Geography Workshop**

.5-3 credit hours/ 1-6 periods (.25-1.5 lec., .75-4.5 lab)

Workshop with an emphasis on geographic and lab techniques using GIS and Remote Sensing material and software.

Offered: May not be offered this year, check class schedule.

**GEO 101 Physical Geography: Weather and Climate**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the physical elements. Includes weather, climate, vegetation, and soils. Also includes their importance to humans, their interrelationships, resulting patterns, and effects.

Offered: Fall, Spring, Summer.

**GEO 102 Physical Geography: Land Forms and Oceans**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the surface of the earth and the forces of nature that shape it. Includes the study of volcanoes, earthquakes, glaciers, rivers, oceans, and the interrelation of these forces with humans.

Offered: Fall, Spring, Summer.

**GEO 103 Cultural Geography**

3 credit hours/ 3 periods (3 lec.)

Examination of the human world from a geographic perspective. Includes geography as a discipline, culture and human geography, the changing Earth, descriptive fundamentals of population geography, migration, and geography of language and religion. Includes rural traditions and livelihoods, urban geography, economic changes and industrialization, political and medical geography.

Offered: Fall, Spring, Summer.

**GEO 104 World Regional Geography**

3 credit hours/ 3 periods (3 lec.)

Geographic concepts and information organized by conventional regions and nations. Includes human social and natural environments in both historical and contemporary contexts. Also includes political, economic, population, and physical geographic topics appropriate for elementary and secondary education.

Offered: May not be offered this year, check class schedule.

**GEO 233 Geography of Latin America**

3 credit hours/ 3 periods (3 lec.)

An overview of the various social science perspectives that may be employed in the study of Latin America. Includes definitions and perceptions of Latin America, landforms and natural regions, weather and climate, Iberian heritage, conquest, colonialism, and independence, political systems, and race and ethnicity before and after 1492. Also includes arts and popular culture, religion, agriculture, mining, manufacturing and tourism, settlement patterns, urbanization, migration, and development and health.

Offered: May not be offered this year, check class schedule.

**GEO 250 Introduction to Medical Geography**

3 credit hours/ 3 periods (3 lec.)

Introduction to the spatial aspects of health and disease. Includes disease mapping, etiology, statistical associations, health care inequities, and spatial distribution of health care facilities.

Offered: Fall, Spring.

**GEO 265 Mapping Concepts**

1 credit hour/ 1 period (1 lec.)

Introduction to the practical use of maps. Includes map basics and attributes, scales and measurements, direction, geographic coordinate systems, relief and contours, and aerial photography.

Information: Same as ANT/ARC 265.

Offered: May not be offered this year, check class schedule.

**GEO 267 Introduction to Geographic Information Systems**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the technology of geographic information systems. Includes the evolution of technology, system components, database concepts, applications, and implementation.

*Recommendation:* Completion of GEO 265 and basic computer skills before enrolling in this course.

Information: Same as ANT/ARC 267.

Offered: Fall.

**GEO 284 Computer Cartography and CAD**

3 credit hours/ 5 periods (2 lec., 3 lab)

Cartographic techniques and hardware for computer generation of maps. Includes and introduction, methods and techniques, and applications projects.

*Recommendation:* Completion of ANT/ARC 265 or concurrent enrollment and CSA 101 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**GEO 296 Independent Studies in GEO**

.5-6 credit hours/ 1-12 periods (.25-3 lec., .75-9 lab)

Students independently continue their studies in Geography under the supervision of a faculty member.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

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**GEOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**GLG 101IN Introductory Geology I: Physical Geology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the physical aspects of the earth's crust. Includes rocks and minerals and their relationship to one another. Also includes surface and subsurface processes operating on and in the earth.

Offered: Fall, Spring, Summer.

**GLG 102IN Introductory Geology II: Historical Geology**

4 credit hours/ 6 periods (3 lec., 3 lab)

The history of the earth and of life on earth. Includes the sequence of rock layers, former geographic relationships, the fossil record and the nature of ancient environments.

Recommendation: Completion of GLG 101 before enrolling in this course.

Offered: Fall, Spring.

**GLG 110 Geological Disasters and Environmental Geology**

3 credit hours/ 3 periods (3 lec.)

Survey of geologic processes that interact with human activities. Includes emphasis on rivers and floods, landslides, earthquakes and volcanic action. Also includes problems of water quality, resource availability and toxic and radioactive waste.

Prerequisite(s): GLG 101IN.

Offered: Spring.

**GLG 140IN Introduction to Oceanography**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the study of oceans. Includes scientific measurements, lab techniques, and the scientific method, introduction to oceanography, geological, chemical, physical and biological oceanography, and the human presence in the ocean.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**GLG 221IN Structural Geology**

4 credit hours/ 8 periods (2 lec., 6 lab)

Study of structures from formation and deformation of rocks, of the forces causing such deformations, and the resulting geographic features. Including field mapping techniques.

Prerequisite(s): GLG 101 or equivalent.Recommendation: Completion of GLG 102 before enrolling in this course.

Information: Trigonometry is required before enrolling in this course. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Spring.

**GLG 236 Geologic Resources**

3 credit hours/ 3 periods (3 lec.)

Survey of geologic resources, with emphasis on fossil fuels, metals, nuclear energy, and water resources. Includes an overview of geologic resources, distinctions between renewable vs. non-renewable resources, reserves, metals, non-metallic commodities, energy resources, environmental and economic concerns, geopolitical and global economic effects, and the future of geologic resources.

Recommendation: Completion of GLG 101 before enrolling in this course.

Offered: Spring.

**GLG 240 Geology of Selected Regions**

2-3 credit hours/ 2-3 periods (2-3 lec.)

Geologic survey of a specific region. Includes the stratigraphy, structure, historical geology and most important geologic processes operating today. Also includes aspects of resource use by human occupants.

Prerequisite(s): GLG 101.Recommendation: Completion of GLG 102 before enrolling in this course.

Information: May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring, Summer.

**GLG 240TB Geology of Selected Regions: Tucson Basin**

2-3 credit hours/ 2-3 periods (2-3 lec.)

Geologic survey of a specific region. Includes the stratigraphy, structure, historical geology and most important geological processes operating today.

Also includes aspects of resource use by human occupants.

Prerequisite(s): GLG 201.Recommendation: Completion of GLG 102 before enrolling in this course.

Information: May be taken four times for a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**GLG 244IN Geological Field Excursions**

1-3 credit hours/ .5-12 periods (.25-3 lec., .25-9 lab)

Field excursions providing encounters with geologic features and processes in a given geographic area. Includes focus on observing, recording and analyzing materials and processes of the selected region. Also includes natural, cultural and economic development associated with the geological environment.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously. Consent of instructor is required before enrolling in this course. May likely involve overnight camping and possibly moderately strenuous hikes. May be taken four times for a maximum of twelve credits.

Offered: May not be offered this year, check class schedule.

**GLG 280IN Geology of Arizona**

3 credit hours/ 5 periods (2 lec., 3 lab)

Stratigraphy, structure, and geologic history of Arizona and adjacent areas. Includes emphasis on discovery of the stories behind today's often spectacular Arizona scenery.

Prerequisite(s): GLG 101 and 102.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously. Lab consists of multi-day field excursions.

Offered: May not be offered this year, check class schedule.

**GLG 296 Independent Studies in Geology**

.5-3 credit hours/ 1.5-9 periods (1.5-9 lab)

Students independently continue their studies in Geology under the supervision of a faculty member.

Information: Consent of instructor is required before enrolling in this course. May be taken three times for a maximum of nine credit hours.

Offered: May not be offered this year, check class schedule.

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**GERMAN**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**GER 050 Social and Cultural German: Food Traditions and Dining**

2 credit hours/ 2 periods (2 lec.)

Introduction to the German language presented in the context of food traditions and dining. Includes food in the culture of Germany, language of groceries and ingredients, and conversation for dining. Also includes cultural contexts of food, reading recipes, and special ingredients.

Information: Does not include cooking techniques.

Offered: May not be offered this year, check class schedule.

**GER 051 Social and Cultural German: Travel**

2 credit hours/ 2 periods (2 lec.)

Introduction to the German language presented in the context of travel, from planning a trip to returning home. Includes travel in Germany, words, phrases, and beginning conversation related to transportation, conversation for hotels, restaurants, and tourist services, and language of health and hygiene. Also includes terms and place names.

Offered: May not be offered this year, check class schedule.

**GER 101 Elementary German I**

4 credit hours/ 4 periods (4 lec.)

Introduction to the German language. Includes developing proficiency in listening, speaking, reading, and writing. Also includes German cultural traditions.

Offered: Fall, Spring.

**GER 102 Elementary German II**

4 credit hours/ 4 periods (4 lec.)

Continuation of GER 101. Includes increased proficiency in listening, speaking, reading, and writing. Also includes German cultural traditions.

Prerequisite(s): GER 101.

Information: Prerequisites may be waived with one year of high school German.

Offered: Fall, Spring.

**GER 201 Intermediate German I**

4 credit hours/ 4 periods (4 lec.)

Continuation of GER 102. Includes an intensive review of grammar, in addition to reading selected authors and writing short compositions. Also includes extensive practice in speaking German.

Prerequisite(s): GER 102.

Information: Prerequisites may be waived with two years of high school German.

Offered: Fall, Spring.



**GER 202 Intermediate German II**

4 credit hours/ 4 periods (4 lec.)

Continuation of GER 201. Includes an emphasis on efficient and contemporary language usage.

Prerequisite(s): GER 201.

Offered: Fall, Spring.

**GER 296 Independent Study in German**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent study in German literature, or special projects under the supervision of an instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring.

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**GREEK**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**GRK 101 Elementary Modern Greek I**

4 credit hours/ 4 periods (4 lec.)

Introduction to the modern Greek language. Includes basic Greek alphabet system, basic Greek grammar structures, composing Greek, formulating answers in Greek, and Greek culture. Also includes a foundation in listening, speaking, reading, writing, and cultural awareness.

Offered: May not be offered this year, check class schedule.

**GRK 102 Elementary Modern Greek II**

4 credit hours/ 4 periods (4 lec.)

Continuation of GRK 101. Includes additional Greek grammar and structure, additional topics in Greek, additional composing in Greek, and additional Greek culture. Also includes an additional level of listening, speaking, reading, writing, and cultural awareness.

Prerequisite(s): GRK 101.

Offered: May not be offered this year, check class schedule.

**GRK 201 Intermediate Modern Greek I**

4 credit hours/ 4 periods (4 lec.)

Continuation of GRK 102. Includes intermediate grammar structures, response to unanticipated questions, political, economic, and social vocabulary in readings and writings, intermediate literary interpretation, and intermediate Greek cultural topics.

Prerequisite(s): GRK 102.

Offered: May not be offered this year, check class schedule.

**GRK 202 Intermediate Modern Greek II**

4 credit hours/ 4 periods (4 lec.)

Continuation of GRK 201. Includes additional intermediate Greek grammar and sentence structures, oral descriptions and narration of intermediate level topics, intermediate level responses to complex topics, interpretation of literary works.

Prerequisite(s): GRK 201.

Offered: May not be offered this year, check class schedule.

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**HEALTH CARE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HCA 102 Drug Calculations**

1 credit hour/ 1 period (1 lec.)

Computation of medication dosage. Includes basic mathematics review, calculation of medications ordered in the metric system, the apothecary system, the household system, and in units and milliequivalents. Also includes reading medication labels, and calculation of injectable medication dosages.

Corequisite(s): HCA 155, NRS 104

Offered: Fall, Spring.

**HCA 154 Introduction to Health Care Delivery**

3 credit hours/ 3 periods (3 lec.)

Overview of current health care professions including career and labor market information. Includes health care delivery systems, third-party payers, and facility ownership. Includes organization structure, patients' rights and quality care, health care and life values, workers' rights and responsibilities. Includes healthful living practices to include nutrition, stress management and exercise. Includes OSHA standard precautions and facility safety. Also includes a focus on communication and intercultural communication strategies to promote teamwork.

Offered: Fall, Spring, Summer.

**HCA 155 Intro To Pharmacology**

3 credit hours/ 3 periods (3 lec.)

Introduction to Pharmacology Application of the nursing process to actions, uses and effects of medications and intended for nursing students. Includes introduction to the study of pharmacology, the nursing process and fundamentals of medication therapy, pharmacokinetics and pharmacodynamics, and applying the nursing process for clients receiving various medications.

Corequisite(s): HCA 102, NRS 104

Offered: Fall, Spring.

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**HEALTH CONTINUING EDUCATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HCE 250 Intravenous Medication Therapy**

3 credit hours/ 3 periods (3 lec.)

Techniques for licensed personnel to administer IV therapy with selected premixed medications and solutions. Includes principles of IV therapy, fluid balance in the body, local and systemic complications, therapy and patient care, medication delivery equipment, therapy monitoring and documentation, and skills demonstration.

Recommendation: Licensed Practical Nurse or consent of instructor before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**HCE 251 Initiating Intravenous Therapy**

1 credit hour/ 1 period (1 lec.)

Theory and practice needed for the current LPN to start, maintain, and discontinue intravenous (IV) therapy (peripheral venipuncture) under the supervision of a registered nurse. Includes anatomy and physiology, sites for venipuncture, fluid replacement therapy, infusion equipment, intravenous solutions, flowrate of IV infusion, starting an IV infusion, nursing management of IV therapy, skills demonstration and practice, and clinical practice and certification.

Recommendation: Licensed Practical Nurse or consent of instructor before enrolling in this course.

Offered: May not be offered this year, check class schedule.

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**HEALTH EDUCATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HED 136 Introduction to Health Sciences**

3 credit hours/ 3 periods (3 lec.)

Contemporary health-related issues for all dimensions of the individual. Includes understanding health for ourselves and others, a lifetime of wellness, responsible sexuality, and avoiding harmful habits.

Offered: May not be offered this year, check class schedule.

**HED 140 First Aid and Cardiopulmonary Resuscitation**

1 credit hour/ 1 period (1 lec.)

Theory and practice for treatment of infants, children, and adults. Includes standard first aid and cardiopulmonary resuscitation (CPR).

Offered: Fall, Spring, Summer.

**HED 140A First Aid**

.5 credit hours/ .5 periods (.5 lec.)

Standard first aid for the immediate care for victims of injuries or sudden illness. Includes recognizing emergencies deciding to act, preparing for emergencies, injuries, cuts, scrapes, bruises, and burns. Also includes sudden illness, poisoning, battling the elements, and the young and elderly.

Information: HED 140A and 140B together constitute HED 140.

Offered: May not be offered this year, check class schedule.

**HED 140B Cardiopulmonary Resuscitation (CPR)**

.5 credit hours/ .5 periods (.5 lec.)

Emergency first aid for respiratory failure and cardiac arrest. Includes recognizing an emergency, understanding the human body, and care for life threatening emergencies.

Information: HED 140A and 140B together constitute HED 140.

Offered: May not be offered this year, check class schedule.



## HEALTH INFORMATION TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### HIT 100 Introduction to Health Information Management

2 credit hours/ 2 periods (2 lec.)

Overview of organization and analysis of the medical health record. Includes introduction to health information management, accreditation, licensure, health, medical, clinical, and mental health records, management of record systems, forms design and control, filing methods and retention, classification systems, health care statistics, health information in reimbursement, computer and information systems, legal aspects and management of quality, and supervisory role of the health information department.

Offered: Fall, Spring.

### HIT 101 ICD-9 Coding I

3 credit hours/ 3 periods (3 lec.)

Overview of the International Classification of Diseases- 9th Edition (ICD-9) coding classification system. Includes terminology, principles and components of the ICD-9 coding system, codes for diseases and conditions, information from health records, and coding for highest specificity.

Prerequisite(s): OAP 262, 263, HIT 100.

Recommendation: OAP 262, 263, HIT 100

Information: Experience in the medical field may be substituted for the prerequisite and recommendations. See a full-time OAP faculty member for details.

Offered: Fall, Spring.

### HIT 102 CPT Coding I

3 credit hours/ 3 periods (3 lec.)

Study and application of Current Procedural Terminology (CPT) and Health Care Procedural Coding System (HCPCS) coding. Includes coding systems, reimbursement, coding guidelines and standards, evaluation and management, and surgical, radiology, pathology, and laboratory and medicine procedures.

Prerequisite(s): OAP 162.

Recommendation: OAP 262, 263, HIT 101.

Information: Experience in the medical field may be substituted for the prerequisite and recommendations. See a full-time OAP faculty member for details.

Offered: Fall, Spring.

### HIT 110 Medical Billing and Insurance I

3 credit hours/ 3 periods (3 lec.)

Overview and principles of the basics of health insurance and medical billing. Includes principles of health insurance and medical billing, health insurance contracts, claims process, insurance terminology, abbreviations, and symbols, diagnostic and procedural coding (with emphasis on medical terminology, anatomy and physiology), client eligibility and reimbursement processes, health care statistics, and supervision and management.

Prerequisite(s): OAP 162.

Offered: Fall, Spring, Summer.

### HIT 111 Medical Billing and Insurance II

3 credit hours/ 3 periods (3 lec.)

Continuation of HIT 110. Includes managed care systems, eligibility for managed care systems, Medicare requirements, Medicaid programs or Arizona Health Care Cost Containment System (AHCCCS), TRICARE and CHAMPA, workers' compensation, disability insurance, procedural and diagnostic coding, billing software, and hospital billing.

Prerequisite(s): HIT 110.

Offered: Fall, Spring, Summer.

### HIT 120 Pharmacology for Health Information Technology

3 credit hours/ 3 periods (3 lec.)

Basic terminology and spelling of commonly used drugs. Includes drug names, reference books, classification of drugs, and abbreviations and symbols.

Offered: Fall, Spring.

### HIT 201 ICD-9 Coding II

3 credit hours/ 3 periods (3 lec.)

Advanced use of references, source documents, and computer software for diagnostic coding in health care settings for outpatient and inpatient hospital coding. Includes interpretation of ICD-9 codes relative to inpatient and outpatient hospital reimbursement, analysis of inpatient and outpatient hospital source documents in a variety of settings to determine proper coding, prospective payment systems, auditing and analysis of patient charts, application of inpatient and outpatient diagnostic codes in the integumentary system, musculoskeletal system, respiratory system, cardiovascular system, digestive system, urinary, female, and male reproductive systems, endocrine and nervous systems, and for interventional radiology services, development of compliance program for enforcement of regulatory and governmental rules, application of confidentiality and privacy policies and procedures, abstracting data, and computer applications.

Prerequisite(s): HIT 102.

Offered: Fall, Spring.

### HIT 202 Hospital Procedural Coding

3 credit hours/ 3 periods (3 lec.)

Focus on outpatient and inpatient procedural coding. Includes Current Procedural Terminology (CPT), ICD-9 Volume 3, and Health Care Procedural Codes (HCPCS) guidelines update, modifier applications, evaluation and management services, code for procedures, integumentary system, musculoskeletal system, respiratory system, cardiovascular system, digestive system, urinary/male reproductive system, female reproductive system, endocrine/nervous systems, ocular and auditory systems, interventional radiology, prospective payment systems, abstracting data, current reimbursement issues, and computer applications.

Prerequisite(s): HIT 102.

Offered: Fall, Spring.

### HIT 290 Health Information Technology Internship

4 credit hours/ 16 periods (1 lec., 15 lab)

Volunteer Health Information Technology field experience at an approved work site. Includes communications, positive work attitudes, ethics, progress review, health information systems, professional development, employment strategies, and final evaluation within a classroom seminar setting.

Prerequisite(s): OAP 263, HIT 111 or 202.

Information: Designed for students in their final semester of course work in the Health Information Technology option.

Offered: Fall, Spring.

## HEBREW

### HEB 101 Elementary Modern Hebrew I

4 credit hours/ 4 periods (4 lec.)

Introduction to Elementary Modern Hebrew language. Includes basic Hebrew alphabet system, basic Hebrew grammar structures, writing and oral proficiency, listening and reading comprehension, and Israeli/Jewish culture.

Offered: May not be offered this year, check class schedule.

### HEB 102 Elementary Modern Hebrew II

4 credit hours/ 4 periods (4 lec.)

Continuation of HEB 101. Includes additional Hebrew grammar and structure, additional writing and oral proficiency, listening and reading comprehension, and additional Israeli/Jewish culture.

Prerequisite(s): HEB 101.

Offered: May not be offered this year, check class schedule.

### HEB 201 Intermediate Modern Hebrew I

4 credit hours/ 4 periods (4 lec.)

Continuation of HEB 102. Includes intermediate grammar and structures, intermediate writing and oral proficiency, intermediate listening and reading comprehension, and intermediate Israeli/Jewish culture.

Prerequisite(s): HEB 102.

Offered: May not be offered this year, check class schedule.

### HEB 202 Intermediate Modern Hebrew II

4 credit hours/ 4 periods (4 lec.)

Continuation of HEB 201. Includes additional intermediate Hebrew grammar and sentence structures, additional intermediate writing and oral proficiency, additional intermediate listening and reading comprehension, and additional intermediate Israeli/Jewish culture.

Prerequisite(s): HEB 201.

Offered: May not be offered this year, check class schedule.

## HISTORY

### HIS 090 Community Studies Past and Present

3 credit hours/ 3 periods (3 lec.)

Structured project experience in community history. Includes library research, community history interviews, conceptualization of a project, writing the material, guest writer contributions, and finalization of a project.

Information: May be taken two times for a maximum of six credit hours. Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### HIS 101 Introduction to Western Civilization I

3 credit hours/ 3 periods (3 lec.)

Pre-history to the Wars of Religion, a period extending from 10,000 BCE to 1648 CE. Includes transition from pre-historic to the historic period, Greco-Roman world, Early, Central, and Late Middle Ages, and Renaissance and Reformation.

Offered: Fall, Spring, Summer.

**HIS 102 Introduction to Western Civilization II**

3 credit hours/ 3 periods (3 lec.)

History of the origins and development of the modern Western world. Includes Wars of Religion, the Enlightenment, the Eighteenth century, the Nineteenth century, and the Twentieth century.  
Offered: Fall, Spring, Summer.

**HIS 105 Introduction to Chicano Studies**

3 credit hours/ 3 periods (3 lec.)

Chicano(a) life in historical context since 1848. Includes defining Chicanismo ethos, Chicano(a) formations of gender, race, ethnicity, sexuality and class, human rights.  
Offered: Fall, Spring.

**HIS 110 Introduction to Community and Oral History**

3 credit hours/ 3 periods (3 lec.)

Exploration of history and its sub-fields to enable and promote the preparation of professional history products. Includes exploring community, nature of information, varieties of history, historiography, oral history, written record, writing history, libraries and archives, museums, computer access and sources, visual record, and historic preservation. Includes the exploration of career opportunities.  
Offered: May not be offered this year, check class schedule.

**HIS 113 Chinese Civilization**

3 credit hours/ 3 periods (3 lec.)

Introductory survey of the civilization of China from its origins to the present. Formative Period (prehistory -221 B.C.), unification and expansion (221 B.C. - 221 A.D.) period of disunity (222-588), flowering of Chinese culture (589-1279), impact of the Mongols on Chinese civilization (1280-1368), Ming Dynasty peace and prosperity (1368-1644), Qing Dynasty - The Manchu Conquest (1644-1911), Republican China (1912-1949), and People's Republic of China (1949-).  
Offered: Fall, Spring.

**HIS 114 Japanese Civilization**

3 credit hours/ 3 periods (3 lec.)

Introductory survey of the civilization of Japan from its origins to the present. Includes Formative Period (prehistory-250 A.D.), influence of Chinese civilization on Japan (300-794), emergence of uniquely Japanese cultural forms and Heian Period (794-1185), Shogun-establishment of military government and Kamakura Period (1185-1336), civil war and the reunification of Japan and Ashikaga Period (1336-1573), Tokugawa Period (1600-1867), Meiji Period (1868-1912), Taisho Period (1912-1925), Showa Period (1926-1989), and Heisei Period (1990-).  
Offered: Fall, Spring.

**HIS 115 Civilization of India**

3 credit hours/ 3 periods (3 lec.)

Religious, cultural and historical traditions of India from ancient times to the present. Includes origins of Indian civilization, heterodox challenge and Hindu response, coming of Islam and the new social vision, eclipse of Islam and the rise of Europe, Indian polity in transition, and nationhood and the modern world.  
Offered: May not be offered this year, check class schedule.

**HIS 122 Tohono O'odham History and Culture**

3 credit hours/ 3 periods (3 lec.)

Survey of Tohono O'odham culture, historical development, and modern issues. Includes development of culture and world view, sources of Tohono O'odham history, role in economic and social development of Northwestern Mexico and Southwestern United States, and contemporary Tohono O'odham issues.  
Offered: Fall, Spring.

**HIS 124 History and Culture of the Yaqui People**

3 credit hours/ 3 periods (3 lec.)

Survey of the cultural heritage of the Yaqui people and the history of their struggles to protect Yaqui land and customs. Includes Yaqui origins, pre-Columbian Yaqui society, oral traditions and world view, early Spanish contacts, Catholic influences, economic development, rebellions, resistance and leadership, and policies regarding Native Americans. Also includes deportation, genocide, the Mexican Revolution, relocation and adaptation strategies, twenty-first century Yaquis, and research studies.  
Offered: Fall, Spring.

**HIS 127 History & Culture of the Mexican-American in the Southwest**

3 credit hours/ 3 periods (3 lec.)

Historical survey of the Mexicano (a) / Chicano (a) peoples from their indigenous origins in Meso-America and the Gran Chichimeca to the present in the United States. Includes chicano (a) historiography, movements north under Spain and Mexico, nineteenth century to 1880: repression and resistance, making of the Chicano (a) worker to WWII, and toward the 21st century: struggles continue. Also includes the totality of Chicano (a) life since the Treaty of Guadalupe Hidalgo and challenges into the 21st century.  
Information: Same as ANT 127.  
Offered: Fall, Spring.

**HIS 135 Pre-Columbian Art**

3 credit hours/ 3 periods (3 lec.)

Anthropological and art historical survey of the indigenous cultures of the Americas from the earliest times to the period of the Spanish conquest. Includes non-Western art and Western gaze, humanity in the Americas, art and architecture of Pre-Columbian Andes, art and architecture of Pre-Columbian Mesoamerica, and North American indigenous art and architecture.  
Information: Same as ANT/ART 135.  
Offered: May not be offered this year, check class schedule.

**HIS 141 History of the United States I**

3 credit hours/ 3 periods (3 lec.)

Survey of the major developments in American history from the Columbian voyages to the Era of Reconstruction. Includes Colonial America, the Formative Years - 1776-1815, the Early National Period - 1815-1850, and the coming of the Civil War and its aftermath. Also includes the social, intellectual, and political aspects of early American life.  
Offered: Fall, Spring, Summer.

**HIS 142 History of the United States II**

3 credit hours/ 3 periods (3 lec.)

Survey of the major developments in American history from Era of Reconstruction to the present. Includes the era of Reconstruction, the emergence of modern America, the Early 20th Century, and America as a world power. Also includes the social, intellectual, and political aspects of contemporary American life.  
Offered: Fall, Spring, Summer.

**HIS 147 History of Arizona**

3 credit hours/ 3 periods (3 lec.)

Survey of the major developments in the history of Arizona. Includes the Pre-Columbian period through the Spanish era, the Mexican Republic, the years as a U.S. territory, and the time since statehood to the present. Also includes the contributions of the various peoples who have formed the unique cultural and ethnic fabric of this area.  
Offered: Fall, Spring, Summer.

**HIS 148 History of Indians of North America**

3 credit hours/ 3 periods (3 lec.)

History of the cultural development of Native Americans of North America and the interrelations of cultures. Includes Native American origins, early economic and social development, Europeans, eras in Native American history, modern leadership, and research studies.  
Information: Same as ANT 148.  
Offered: Fall, Spring.

**HIS 150 African-American History and People**

3 credit hours/ 3 periods (3 lec.)

African-American history from the colonial period to the present. Includes identity, double consciousness, culture and arts, and political protest.  
Information: Same as ANT 150.  
Offered: May not be offered this year, check class schedule.

**HIS 160 Latin America Before Independence**

3 credit hours/ 3 periods (3 lec.)

Survey of the history and people of Latin America from indigenous origins to independence. Includes theory and geography, indigenous Latin America, European background, colonial economy and society, and resistance and movements for independence in Latin America.

Recommendation: Placement on PCC assessment tests above REA 091 and into WRT 101.

Information: Course meets the AGEC Special Requirements of "I" (Intensive Writing), "G" (Global Awareness) and "C" (Cultural Diversity). Students will have writing assignments that require college writing level skills.  
Offered: Fall, Spring.

**HIS 161 Modern Latin America**

3 credit hours/ 3 periods (3 lec.)

Survey of the history and people of Latin America from Independence to the present. Includes Post-Colonial consolidation, early twentieth-century, United States-Latin America relations, guerrilla movements and reaction and Latin America today.

Recommendation: HIS 160, and placement on PCC assessment exams above REA 091 and into WRT 101.

Information: Course meets the AGEC Special Requirements of "I" (Intensive Writing), "G" (Global Awareness), and "C" (Cultural Diversity). Students will have writing assignments that require college level writing skills.  
Offered: Fall, Spring.

**HIS 165 History of Mexico I**

3 credit hours/ 3 periods (3 lec.)

Survey of Mesoamerican civilizations through Spanish conquest and colonization. Includes historiographical theories and Mesoamerica, Spanish invasions and conquest, colonial New Spain, and late colonial period and independence and legacies of Mesoamerica and colonialism.  
Offered: Fall, Spring.

**HIS 166 History of Mexico II**

3 credit hours/ 3 periods (3 lec.)

Survey from early nation-building to the present. Includes historiographical theories, chronologies, vocabulary and geographies, and the conflicts of Nation Building, El Porfiriato, the revolution, and institutionalized revolution.  
Offered: Spring.

**HIS 170 History and People of Africa**

3 credit hours/ 3 periods (3 lec.)

Survey of the political and cultural history of Africa from pre-historic settlements to the modern era. Includes earliest people of Africa, internal development of African societies, impact of Islam, emerging world economy, age of European expansion, war and post war period, anti-colonial movements, and the Third World.  
Offered: May not be offered this year, check class schedule.

**HIS 180 Women in Western History**

3 credit hours/ 3 periods (3 lec.)

Survey of women's history in the Western World from Antiquity to the Modern Age. Includes Ancient Near Eastern civilizations, women of the Classical World, medieval women, reformation and revolution in early modern and progressive eras, women and war in the Western World, and postwar social developments and movements.  
Offered: Fall.

**HIS 244 Western America**

3 credit hours/ 3 periods (3 lec.)

Survey of the patterns of American expansion and settlement in the Western United States. Includes mythology and terminology surrounding the West, factors that made the West, political power and warfare, cultural and gender contributions to the West, and historiographers of the American West.  
Offered: Spring.

**HIS 253 History of Women in the United States: Early America**

3 credit hours/ 3 periods (3 lec.)

Survey of American women's history from Colonization to the turn of the century. Includes history and politics of the region and country, women of the new republic, transformation of a nation, nineteenth century social and economic development of women, civil war, reconstruction, progressivism, and suffrage.  
Offered: Fall.

**HIS 254 History of Women in the United States: The 20th Century**

3 credit hours/ 3 periods (3 lec.)

Survey of American women's history from 1900 to the present. Includes early 20th century gender, race/ethnicity, class formation, women and war, civil rights, feminist, and other social movements, and feminism's change since the 1970's.  
Offered: Spring.

**HIS 274 The Holocaust**

3 credit hours/ 3 periods (3 lec.)

Causes and legacies of the Nazi assault on humanity. Includes the history of hate in Europe, historical antecedents and preconditions, Third Reich and creation of the racial state, from isolation to the "Final Solution", aftermath (1945-) and the Holocaust and relevant events.  
Offered: Fall, Spring, Summer.

**HIS 277 History of the Middle East: From the Rise of Islam to 1453**

3 credit hours/ 3 periods (3 lec.)

Survey of the history, religion, and culture of Muslim societies. Includes the Middle East in the Sixth Century CE, Muhammad and Qur'an, Islam and the Islamic State, Fatamids, Seljuks, and the Crusades, Mongols, Mamluk Egypt, and the Ottoman Turks.  
Offered: Fall.

**HIS 278 History of the Middle East: From 1453 to the Present Age**

3 credit hours/ 3 periods (3 lec.)

Survey of the history, religion and culture of the Islamic world from the fifteenth century through the modern period. Includes the Ottoman Empire, Safavid Empire, European imperialism and the early modern Middle East, world wars and the Middle East, and the modern Middle East.  
Offered: Spring.

**HIS 280 History of the World Wars**

3 credit hours/ 3 periods (3 lec.)

Survey of the two world wars of the twentieth century. Includes prelude to war, outbreak of the great war, war of two fronts, inter-war years, World War II, and post war world. Also includes changes created in society, government, and international relations as a result of the two wars.  
Offered: Fall, Spring.

**HIS 281 Vietnam, Soviet Confrontations, and the Cold War**

3 credit hours/ 3 periods (3 lec.)

Causes and effects of US-Soviet confrontations from WW II to 1994. Includes origins of the Cold War from WW II, initial Soviet probes, challenges in the Far East, probes and rhetoric, Soviet globalism, Vietnam, period of detente, end of detente, new challenge to Soviet Expansionism, and new vision/new world order.

Information: This is a follow-up course to HIS 280 History of the World Wars, however HIS 280 is not a prerequisite. Course will require a college level reading ability.  
Offered: Fall.

**HIS 284 Modern Israel and Arab/Israeli Relations**

3 credit hours/ 3 periods (3 lec.)

Introduction to the modern State of Israel, Arab/Israeli relations, and the United States involvement in the Middle East, from the rise of Zionism in 19th century Europe to the present. Includes origins of modern Israel and Arab/Israeli relationships up to 1917, Palestine mandate, Zionist state-building, and Jewish/Arab relations up to 1948, State of Israel relations with Arab States, search for security, and U.S.'s role between 1948-1967, Arab/Israeli/Palestinian relations, quest for peace, and U.S.'s role between 1967-1984, Palestinian/ Arab/Israeli relations and U.S.'s involvement in global and regional events from 1984 to the present.  
Offered: Fall.

**HIS 296 Independent Studies in History**

1-4 credit hours/ .5-16 periods (.25-4 lec., .25-12 lab)

Independent study in history. Includes topic identification, research plan, data gathering, and presentation of findings.

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of four credit hours.

Offered: Fall.

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**HISTOTECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HTP 100 Histotechniques I**

5 credit hours/ 7 periods (3 lec., 4 lab)

Introduction to the fundamental techniques of histology. Includes fixation, processing, instrumentation, safety, and routine staining.

Prerequisite(s): HTP 210.

Offered: Spring.

**HTP 199 Intro to Co-op: Histotechnology Research/Development**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience.

Corequisite(s): HTP 199WK

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**HTP 199WK Co-op Work: Histotechnology Research/Development**

4 credit hours/ 20 periods (20 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors in a research setting.

Corequisite(s): HTP 199

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**HTP 200 Histotechniques II**

5 credit hours/ 7 periods (3 lec., 4 lab)

Continuation of HTP 100. Introduction to the fundamental techniques of histology. Includes connective and muscle tissue, nerves, microorganisms, pigments, minerals, and cytoplasmic granules, and carbohydrates and amyloid.  
Offered: Summer.

**HTP 201 Histotechniques III**

4 credit hours/ 4 periods (4 lec.)

Continuation of HTP 200. Survey of special Histotechniques. Includes microwave technology for histology, immunohistochemistry, enzyme histochemistry, electron microscopy, in-situ hybridization, and immunofluorescent.

Prerequisite(s): HTP 200.

Offered: Spring

**HTP 202 Histotechniques IV**

3 credit hours/ 3 periods (3 lec.)

Continuation of HTP 201. Preparation for the ASCP (American Society for Clinical Pathologists) Certification. Includes the ASCP organization and testing, safety in the Histology lab, fixation, processing, microtomy, nuclear and cytoplasmic staining, and special staining.

Prerequisite(s): HTP 201, and 299/WK or concurrent enrollment.

Offered: Spring.



**HTP 210 Histology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the microscopy of human cells and tissues. Includes histology, cytoplasm, nucleus, extracellular matrix, epithelia, connective tissues, muscle, and systems of the human body. Also includes regeneration, and molecular mechanisms of cellular identity.

Prerequisite(s): BIO 156IN or required score on assessment test, CHM 130 or higher, and MAT 122 or higher.

Information: Computer proficiency is expected of students in the Histotechnology program.

Offered: Fall.

**HTP 299 Introduction to Co-op: Histotechnology Clinical**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Emphasis on attitude adjustment.

Corequisite(s): HTP 299WK

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**HTP 299WK Co-op Work: Histotechnology Clinical**

4 credit hours/ 20 periods (20 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors in a clinical setting.

Corequisite(s): HTP 299

Information: May be taken two times for a maximum of eight credit hours. At least one cooperative education experience must take place in a clinical setting. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**HONORS PROGRAM**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HON 101 Honors Colloquium**

3 credit hours/ 3 periods (3 lec.)

Dynamic, interdisciplinary course introducing honors students to the adventure of scholarly research, writing, and conversation. Includes defining and debating contemporary social issues in relation to history, science, politics, economics, technology, psychology, and the arts. Also includes encouraging students to develop their creativity; enhance their practices of critical reflection, argumentation, and collaboration; and explore their understandings of cultural diversity in local and global contexts.

Information: Admission to the Honors program is required before enrolling in this course.

Offered: Fall, Spring.

**HON 210 College Honors Advisory Council**

1 credit hour/ 1 period (1 lec.)

Student representative to the College Honors Advisory Council (CHAC). Includes CHAC meetings, reports, special Honors Program events, and end of semester report. Also includes local campus activities.

Information: May be taken three times for a maximum of three credit hours.

Offered: Fall, Spring.

**HON 244 Honors Field Excursions**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Field excursion to provide direct experience of foreign cultures and people and of academic development events through travel and study. Includes a range of visits to foreign or domestic cultural and educational sites, local field excursions, or attendance at conferences and meetings.

Recommendation: Consult instructor for prerequisites specific to planned excursion.

Information: May require foreign or domestic travel expenses. May be taken four times for a maximum of twelve credits hours.

Offered: Spring.

**HON 296 Honors Independent Study Project**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Exploration of special interest areas for Honors students. Content to be determined jointly by student and faculty mentor.

Prerequisite(s): HON 101.

Information: May be taken three times for a maximum of three credit hours.

Offered: Fall, Spring.

**HOTEL AND RESTAURANT MANAGEMENT**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HRM 100 Introduction to the Hospitality Industry**

3 credit hours/ 3 periods (3 lec.)

Overview of the hospitality, travel, and tourism industry. Includes hospitality careers, foodservice, restaurant organization, hotels and hotel organization, meeting industry, management and leadership, human resources, marketing and selling, marketing communications, management companies, franchising, and ethics in hospitality management.

Offered: Fall, Spring.

**HRM 101 Front Office Procedures**

3 credit hours/ 3 periods (3 lec.)

Principles and procedures for front office operations in hotels and resorts. Includes classification of hotels, hotel organization, front office operations, reservations, registration, front office accounting, check out and settlement, night audit, planning and evaluating operations, revenue management, and managing human resources.

Offered: Fall, Spring.

**HRM 104 Hotel Food and Beverage Management**

3 credit hours/ 3 periods (3 lec.)

Hotel food and beverage operations and management. Includes volume food management history, management structures and functions, personnel management, facilities, tools, and equipment, purchasing and storage, beverage management and service, controlling costs/quality assurance, food preparation techniques, sanitation, liability issues, menus and recipes, and food products.

Offered: Fall.

**HRM 110 Food Service Systems Management**

3 credit hours/ 3 periods (3 lec.)

Introductory course identifying and describing the various interrelated components of systematic foodservice management. Students will be introduced to cost management theory, system control, and financial management.

Offered: Fall.

**HRM 111 Commercial Food**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to all facets of hot foods in a commercial kitchen including the application of the principles, procedures, and the techniques involved in small or large quantity food preparation and production.

Prerequisite(s): HRM 110.

Offered: Spring.

**HRM 120 Meetings and Convention Management**

3 credit hours/ 3 periods (3 lec.)

Principles for the professional meeting manager. Includes site selection, conventions and visitors bureaus, the art of negotiation, confirmation letters, contracts, and lease agreements, program planning, budgeting and financial management, liability and convention/meeting insurance, housing, working with meeting facilities, food and beverage arrangements, transportation, audio-visual equipment, and exhibitions.

Offered: Summer.

**HRM 150 Executive Housekeeping**

3 credit hours/ 3 periods (3 lec.)

Foundations and applications of housekeeping operations. Includes housekeeping techniques, organizational planning and laundry operations, and procedures and guidelines for security and safety.

Offered: Fall, Spring.

**HRM 199 Introduction to Co-op: Hospitality**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

Corequisite(s): HRM 199WK

Offered: Fall, Spring.

**HRM 199WK Co-op Work: Hospitality**

1-8 credit hours/ 5-40 periods (5-40 lab)

See cooperative Education section for description.

Corequisite(s): HRM 199

Offered: Fall, Spring.

**HRM 235 Hospitality Law**

3 credit hours/ 3 periods (3 lec.)

Examination of legal aspects of hospitality management. Includes basic legal principles governing hospitality operation, hotel-guest relationship, hotel's duties to guest and others, laws relating to restaurants, foodservice, and bars, and laws relating to hotel employees and general hotel operations.

Prerequisite(s): HRM 100.

Offered: Fall.



**HRM 245 Hospitality Human Resource Management**

3 credit hours/ 3 periods (3 lec.)

Examination of personnel issues. Includes recruitment, selection, orientation, training, wage and benefit, legal issues, and employee appraisal.

Prerequisite(s): HRM 100.

Offered: Spring.

**HRM 299 Introduction to Co-op: Hotel and Restaurant Management**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

Prerequisite(s): A minimum of 12 credit hours of Hospitality prefix courses or one year of related industry work experience is required before enrolling in this course.Corequisite(s): HRM 299WK

Offered: Fall, Spring.

**HRM 299WK Co-op Work: Hotel & Restaurant Management**

1-3 credit hours/ 5-15 periods (5-15 lab)

See Cooperative Education section for description.

Prerequisite(s): A minimum of 12 credit hours of Hospitality prefix courses or one year of related industry work experience is required before enrolling in this course.Corequisite(s): HRM 299

Offered: Fall, Spring.

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**HUMAN RESOURCES MANAGEMENT**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HRS 101 Introduction to Human Resources Management**

3 credit hours/ 3 periods (3 lec.)

Practical applications for success in personnel management. Includes human resources management in perspective, meeting requirements, the challenge, function/environment, recruitment, compensation, incentive plans, training and development, and labor relations.

Offered: Fall, Spring, Summer.

**HRS 101A Human Resources Management: Environment and Legal Issues**

1 credit hour/ 1 period (1 lec.)

Environment and legal issues associated with human resources management. Includes competitive challenges and human resources management, demographic and employee concerns, the partnerships of line managers and HR Departments, equal employment opportunities, and the legal and regulatory environment.

Offered: May not be offered this year, check class schedule.

**HRS 101B HRS: Recruitment Compensation, and Training**

1 credit hour/ 1 period (1 lec.)

Recruitment, compensation, and training issues associated with human resources management. Includes relationship of job requirements and HRS functions, job analysis and design, Human Resources Planning (HRP), elements of effective HRP, recruiting within and outside the organization and protected classes, matching people and jobs, sources of information about job candidates, employment tests, the employment interview, reaching a selection decision, strategic compensation planning, components of the wage mix, job evaluation systems, the compensation structure, compensation issues, employee benefits, setting performance measures, incentive plans, and training and development.

Offered: May not be offered this year, check class schedule.

**HRS 101C Human Resources Management: Labor Relations**

1 credit hour/ 1 period (1 lec.)

Labor relations and human resources management. Includes employee rights, disciplinary policies and procedures, appealing disciplinary actions, alternative dispute-resolution procedures, organizational ethics in employee relations, governmental regulation of labor relations, the labor relations process, structures, functions, and leadership of labor unions, labor relations in the public sector, contemporary challenges to labor organizations, the bargaining process, trends in collective bargaining, the labor agreement, and administration of the labor agreement.

Offered: May not be offered this year, check class schedule.

**HRS 102 Human Resource Law**

3 credit hours/ 3 periods (3 lec.)

Legal issues associated with human resources management. Includes hiring, personnel practices, wages and hours, taxes employee benefits, family and medical leave, health and safety, illegal discrimination, workers with disabilities, and termination. May also include independent contractors, unions, and lawyers and legal research.

Offered: Fall, Spring, Summer.

**HRS 102A Human Resource Law: Employment and Compensation**

1 credit hour/ 1 period (1 lec.)

Legal issues associated with employment and compensation. Includes hiring, personnel practices, wages and hours, and employee taxes.

Information: HRS 102A, 102B and 102C together constitute HRS 102.

Offered: May not be offered this year, check class schedule.

**HRS 102B Human Resource Law: Benefits, FMLA and Health/Safety**

1 credit hour/ 1 period (1 lec.)

Legal issues associated with benefits, Family and Medical Leave Act (FMLA), and health and safety. Includes laws, statutes, and ordinances concerning employee benefits, family and medical leave, and health and safety.

Information: HRS 102A, 102B, and 102C together constitute HRS 102.

Offered: May not be offered this year, check class schedule.

**HRS 102C Human Resource Law: Discrimination, ADA, and Termination**

1 credit hour/ 1 period (1 lec.)

Legal issues associated with discrimination, Americans with Disabilities Act (ADA), and termination. Includes laws, statutes, and ordinances concerning illegal discrimination, workers with disabilities, and termination. May also include independent contractors, unions, and lawyers and legal research.

Information: HRS 102A, 102B, and 102C together constitute HRS 102.

Offered: May not be offered this year, check class schedule.

**HRS 103 Benefits and Compensation**

3 credit hours/ 3 periods (3 lec.)

Study of benefits and compensation management. Includes strategic compensation planning, components of the wage mix, job evaluation systems, the compensation structure, governmental regulation of compensation, significant compensation issues, employee benefits programs, employee benefits required by law, discretionary major employee benefits, employee services, reasons and requirements for incentive plans, setting performance measures, administering incentive plans, incentive for non-management employees, incentive for management employees, incentives for executive employees, and gain-sharing incentive plans.

Offered: Fall, Spring, Summer.

**HRS 103A Managing Compensation**

1 credit hour/ 1 period (1 lec.)

Study of compensation management systems. Includes strategic compensation planning, components of the wage mix, job evaluation systems, the compensation structure, governmental regulation of compensation, and significant compensation issues.

Information: HRS 103A, 103B, 103C together constitute HRS 103.

Offered: May not be offered this year, check class schedule.

**HRS 103B Employee Benefits**

1 credit hour/ 1 period (1 lec.)

Study of issues in the area of employee benefits. Includes employee benefits programs, employee benefits required by law, discretionary major employee benefits, and employee services.

Information: HRS 103A, 103B, 103C together constitute HRS 103.

Offered: May not be offered this year, check class schedule.

**HRS 103C Incentive Rewards**

1 credit hour/ 1 period (1 lec.)

Study of incentive compensation plans used to motivate employees. Includes reasons and requirements for incentive plans, setting performance measures, administering incentive plans, incentives for non-management employees, incentives for management employees, incentives for executive employees, and gainsharing incentive plans.

Information: HRS 103A, 103B, 103C together constitute HRS 103.

Offered: May not be offered this year, check class schedule.

**HRS 104 Job Requirements, Recruitment, and Personnel Selection**

3 credit hours/ 3 periods (3 lec.)

Concepts, techniques, and regulation that apply to job requirements, recruitment, and personnel selection. Includes relationships of job requirements and HRS functions, job analysis, job design, relationships of job requirements and HRS functions, job analysis, job design, matching people and jobs, sources of information about job candidates, employment tests, the employment interview, and reaching a selection decision.

Offered: Fall, Spring.

**HRS 104A Job Requirements and Employee Contributions**

1 credit hour/ 1 period (1 lec.)

Concepts, techniques, and regulations that apply to job requirements and employee contributions. Includes relationships of job requirements and HRS functions, job analysis, and job design.

Information: HRS 104A 104B, and 104C together constitute HRS 104.

Offered: May not be offered this year, check class schedule.

**HRS 104B Human Resources Planning and Recruitment**

1 credit hour/ 1 period (1 lec.)

Concepts, techniques, and regulation that apply to human resources planning (HRP) and recruitment. Includes human resources planning, elements of effective HRP, recruiting within the organization, recruiting outside the organization, and recruiting protected classes.

Information: HRS 104A, 104B, and 104C together constitute HRS 104.

Offered: May not be offered this year, check class schedule.

**HRS 104C Employee Selection**

1 credit hour/ 1 period (1 lec.)

Concepts, techniques, and regulations that apply to selection of personnel. Includes matching people and jobs, sources of information about job candidates, employment tests, the employment interview, and reaching a selection decision.

Information: HRS 104A, 104B, and 104C together constitute HRS 104.

Offered: May not be offered this year, check class schedule.

**HRS 105 Training and Development**

3 credit hours/ 3 periods (3 lec.)

Introduction to training, career development, and appraising and improving performance. Includes the scope of training, conducting the needs assessment, designing the training program, implementing the training program, evaluating the training program, special topics in training and development, elements of career development programs, career development and management succession, career development for a diverse workforce, personal career development, performance appraisal programs, developing an effective appraisal program, performance appraisal methods, and appraisal interview.

Offered: Fall, Spring.

**HRS 105A Training**

1 credit hour/ 1 period (1 lec.)

Training activities for effective job performance. Includes the scope of training, conducting the needs assessment, designing the training program, implementing the training program, evaluating the training program, and special topics in training and development.

Information: HRS 105A, 105B, and 105C together constitute HRS 105.

Offered: May not be offered this year, check class schedule.

**HRS 105B Career Development**

1 credit hour/ 1 period (1 lec.)

Career development skills to integrate individual employee needs with those of the organization. Includes elements of career development programs, career development and management succession, career development for a diverse workforce, and personal career development.

Information: HRS 105A, 105B, and 105C together constitute HRS 105.

Offered: May not be offered this year, check class schedule.

**HRS 105C Appraising and Improving Performance**

1 credit hour/ 1 period (1 lec.)

Introduction to performance appraisal procedures to enhance productivity and facilitate progress towards strategic goals. Includes performance appraisal programs, developing an effective appraisal program, performance appraisal methods, and appraisal interviews.

Information: HRS 105A, 105B, and 105C together constitute HRS 105.

Offered: May not be offered this year, check class schedule.

**HRS 106 Labor Relations**

3 credit hours/ 3 periods (3 lec.)

Exploration of issues in the area of labor relations. Includes employee rights, disciplinary policies and procedures, appealing disciplinary actions, organizational ethics in employee relations, government regulation of labor relations, the labor relations process, structures, functions, and leadership of labor unions, labor relations in the public sector, contemporary challenges to labor organizations, the bargaining process, trends in collective bargaining, the labor agreement, and administration of the labor agreement.

Offered: Fall, Spring.

**HRS 106A Employee Rights and Discipline**

1 credit hour/ 1 period (1 lec.)

Exploration of issues in the area of employee rights and discipline. Includes employee rights, disciplinary policies and procedures, appealing disciplinary actions, and organizational ethics in employee relations.

Information: HRS 106A, 106B and 106C together constitute HRS 106.

Offered: May not be offered this year, check class schedule.

**HRS 106B The Dynamics of Labor Relations**

1 credit hour/ 1 period (1 lec.)

Exploration of the dynamics of labor relations. Includes government regulation of labor relations, the labor relations process, structures, functions, and leadership of labor unions, labor relations in the public sector, and contemporary challenges to labor organizations.

Information: HRS 106A, 106B and 106C together constitute HRS 106.

Offered: May not be offered this year, check class schedule.

**HRS 106C Collective Bargaining and Contract Administration**

1 credit hour/ 1 period (1 lec.)

Exploration of issues in the area of collective bargaining and contract administration. Includes the bargaining process, trends in collective bargaining, the labor agreement, and administration of the labor agreement.

Information: HRS 106A, 106B and 106C together constitute HRS 106.

Offered: May not be offered this year, check class schedule.

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**HUMANITIES**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**HUM 107 Humanities Through the Arts**

3 credit hours/ 3 periods (3 lec.)

Humanities through a study of major art forms. Includes an introduction to art, film, drama, music, literature, painting, sculpture, and architecture.

Offered: May not be offered this year, check class schedule.

**HUM 131 Mythology**

3 credit hours/ 3 periods (3 lec.)

Myths, legends, and folktales of the Greeks and Romans. Includes basic concepts of myths, myths of the Greeks and Romans, major Greek divinities and their Roman counterparts, stories about the major divinities, artistic representation of myths, effects of ancient myths on western literary movement, similarities and differences between major mythic systems, and anthropological and psychological approaches to mythic systems. Also includes a humanistic approach to the study of Greek and Roman sacred narratives, stories derived from oral traditions, and cultural events, which invite symbolic analysis.

Offered: Fall, Spring, Summer.

**HUM 196 Independent Studies in Humanities**

3 credit hours/ 3 periods (3 lec.)

Reading and research to be determined between the student and the instructor.

Offered: Fall, Spring.

**HUM 251 Western Humanities I**

3 credit hours/ 3 periods (3 lec.)

Introduction to major cultures from Summer through the early Roman Christian era. Includes general history of ideas, art, architecture, religion, philosophy, drama, music, and literature from ancient Near Eastern civilizations, and Greek, Roman, and Early Roman Christian civilizations. Also includes readings such as the Epic of Gilgamesh, Homer, Sophocles, Aristophanes, Plato, Aristotle, Virgil's Aeneid, Hebrew and the Christian Scriptures, and St. Augustine.

Offered: Fall, Spring, Summer.

**HUM 252 Western Humanities II**

3 credit hours/ 3 periods (3 lec.)

Introduction to major western cultures from the early Medieval through AD 1600. Includes general history of ideas, art, architecture, religion, philosophy, drama, music, and literature from early and late Medieval periods, Renaissance-Reformation, and counter Reformation. Also includes readings such as heroic and religious works of the Middle Ages, Dante, Chaucer, Machiavelli, Shakespeare, and Cervantes.

Offered: Fall, Spring.

**HUM 253 Western Humanities III**

3 credit hours/ 3 periods (3 lec.)

Introduction to the culture of the modern western world from AD 1600 to the present. Includes general history of ideas, art, architecture, religion, philosophy, drama, music and literature from Enlightenment-Baroque, Romantic, Pre-Modern, and Contemporary periods. Also includes readings such as Voltaire, Rousseau, Goethe, Romantic, pre-modern and contemporary literature, poetry, and drama.

Offered: Fall, Spring, Summer.

**HUM 260 Intercultural Perspectives**

3 credit hours/ 3 periods (3 lec.)

Literary and artistic works of American Indians and Asian, Black, and Hispanic Americans, both men and women. Includes traditional and modern works and contributions to American civilization.

Offered: Fall, Spring, Summer.

**HUM 270 Meditation**

3 credit hours/ 3 periods (3 lec.)

Theoretical principles and selected traditions of meditation self-awareness. Includes principles and techniques of meditation, meditation traditions, literature of meditation, meditation arts, and psychology and physiology of meditation.

Information: Same as PSY 270.

Offered: Fall, Spring, Summer.

## ICARNEGIE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### ICG 175 Introduction to Information Systems

4 credit hours/ 4 periods (4 lec.)

Introduction to computer-based information system using programming of web-based software. Includes the Carnegie Technology Education software environment, the Internet, Hypertext Transfer Protocol (HTTP) and the Client/Server environment, Hypertext Markup Language (HTML) and HTML concepts, storing and maintaining files, and designing a simple website. Includes an introduction to Java and Java Applets, programming concepts in Java, incorporating Java Applets into HTML, and evaluating simple user input.

Information: Prior knowledge of HTML and programming is required before enrolling in this course.

Offered: Spring.

### ICG 175A Introduction to Information Systems A

2 credit hours/ 2 periods (2 lec.)

Introduction to computer-based information systems using programming of web-based software. Includes Carnegie Technology Education software environment, the Internet, Hypertext Transfer Protocol (HTTP) and the Client/Server environment, Hypertext Markup Language (HTML) and HTML concepts, storing and maintaining files, and designing a sample website.

Information: ICG 175A and 175B together constitute ICG 175. Prior knowledge of HTML and programming is required before enrolling in this course.

Offered: Spring.

### ICG 175B Introduction to Information Systems B

2 credit hours/ 2 periods (2 lec.)

Continuation of ICG 175A. Includes designing a sample website and an introduction to Java and Java Applets, programming concepts in Java, incorporating Java Applets into HTML, and evaluating simple user input.

Prerequisite(s): ICG 175A.

Information: ICG 175A, and 175B together constitute ICG 175. Prior knowledge of HTML and programming is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### ICG 176 Introduction to Computer Systems

4 credit hours/ 4 periods (4 lec.)

Introduction to the fundamentals of using and maintaining computer systems in an Internet environment. Includes introduction to personal computer hardware, data and storage of data on computer hardware, installation and use of software to create and manipulate data, networking of computers and network types, networking communications and capacity, management, and security.

Offered: Spring.

### ICG 176A Introduction to Computer Systems A

2 credit hours/ 2 periods (2 lec.)

Introduction to the fundamentals of using and maintaining computer systems in an Internet environment. Includes an introduction to personal computer hardware, data and storage of data on computer hardware, installation and use of software to create and manipulate data.

Prerequisite(s): ICG 175 or both 175A and 175B.

Information: ICG 176A and 176B together constitute ICG 176.

Offered: May not be offered this year, check class schedule.

### ICG 176B Introduction to Computer Systems B

2 credit hours/ 2 periods (2 lec.)

Continuation of ICG 176A. Includes the installation and use of software to create and manipulate data, networking of computers and network types, networking communication and capacity, management, and security.

Prerequisite(s): ICG 185 or both 175A and 175B.

Information: ICG 176A and 176B together constitute ICG 176.

Offered: May not be offered this year, check class schedule.

### ICG 177 Object-Oriented Programming and Design

4 credit hours/ 4 periods (4 lec.)

Introduction to problem solving by means of object-oriented design and implementation. Includes Java programming concepts and review, use of Unified Modeling Language (UML), object-oriented representation and data structures, and developing a web-centric object-oriented project.

Prerequisite(s): ICG 175.

Offered: May not be offered this year, check class schedule.

### ICG 177A Object-Oriented Programming and Design A

2 credit hours/ 2 periods (2 lec.)

Introduction to problem solving by means of object-oriented design and implementation. Includes Java programming concepts and review, use of Unified Modeling Language (UML), object-oriented representation and concepts.

Prerequisite(s): ICG 175 or both 175A and 175B.

Information: ICG 177A and 177B together constitute ICG 177.

Offered: May not be offered this year, check class schedule.

### ICG 177B Object-Oriented Programming and Design B

2 credit hours/ 2 periods (2 lec.)

Continuation of ICG 177A. Includes Java programming concepts, object-oriented representation and concepts, using and creating software libraries, recursion and recursive methods, data structures, and developing a web-centric project.

Prerequisite(s): ICG 175 or both 175A and 175B.

Information: ICG 177A and 177B together constitute ICG 177.

Offered: May not be offered this year, check class schedule.

### ICG 178 User-Centered Design and Testing

4 credit hours/ 4 periods (4 lec.)

Overview on human-computer interaction and training in the basic skills of task analysis and interface evaluation and design. Includes introduction to Visual Basic (VB), interface design, task analysis, methods of data collection and analysis, systems design and development process, rapid prototyping and tools, and designing and testing interfaces.

Prerequisite(s): ICG 175.

Offered: May not be offered this year, check class schedule.

### ICG 178A User-Centered Design and Testing A

2 credit hours/ 2 periods (2 lec.)

Overview on human-computer interaction and training in the basic skills of task analysis and interface evaluation and design. Includes introduction to Visual Basic (VB), interface design, task analysis, methods of data collection and analysis, systems design and the development process. Prerequisite(s): ICG 175 or both 175A and 175B.

Information: ICG 178A and 178B together constitute ICG 178.

Offered: May not be offered this year, check class schedule.

### ICG 178B User-Centered Design and Testing B

2 credit hours/ 2 periods (2 lec.)

Continuation of ICG 178A. Includes an overview on human-computer interaction and training in the basic skills of task analysis and interface evaluation and design. Also includes an introduction to task analysis, system design and development process, rapid prototyping and tools, and designing and testing interfaces.

Prerequisite(s): ICG 175 or 175A and 175B.

Information: ICG 178A and 178B together constitute ICG 178.

Offered: May not be offered this year, check class schedule.

### ICG 179 Data Structures and Algorithms

4 credit hours/ 4 periods (4 lec.)

Overview of the correctness and complexity of data structures and algorithms. Includes software engineering concepts and theory, review of C++, stacks, queues, recursion, dynamic abstract data structures, sort and search algorithms, and graphs and networks.

Offered: May not be offered this year, check class schedule.

### ICG 179A Data Structures and Algorithms A

2 credit hours/ 2 periods (2 lec.)

Overview of the correctness and complexity of data structures and algorithms. Includes software engineering concepts and theory, review of C++, stacks, queues, and recursion.

Prerequisite(s): ICG 177 or both 177A and 177B.

Information: ICG 179A and 179B together constitute ICG 179.

Offered: May not be offered this year, check class schedule.

### ICG 179B Data Structures and Algorithms B

2 credit hours/ 2 periods (2 lec.)

Continuation of ICG 179A. Includes software engineering concepts and theory, recursion, dynamic abstract data structures, sort and search algorithms, and graphs, and networks.

Prerequisite(s): ICG 177 or both 177A and 177B.

Information: ICG 179A and 179B together constitute ICG 179.

Offered: May not be offered this year, check class schedule.



## INTERIOR DESIGN

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### IDE 100 Introduction to Interior Design

3 credit hours/ 3 periods (3 lec.)

Foundations of the major aspects of Interior Design. Includes introduction to interior design, principles and elements, materials, furnishings, and other components, process of interior design, and vocabulary.  
Offered: Fall, Spring, Summer.

### IDE 111 Fundamentals of Interior Design

3 credit hours/ 4 periods (2 lec., 2 lab)

Fundamentals and theories of interior design. Includes elements and principles of interior design, design practices, two dimensional (2D) and three dimensional (3D) compositions, and portfolio projects.

Recommendation: Completion of IDE 100 before enrolling in this course or concurrent enrollment.

Offered: Fall, Spring.

### IDE 122 Visual Communications I

3 credit hours/ 4 periods (2 lec., 2 lab)

Interior design visualization techniques and processes. Includes drawing, sketching, skills and mechanics in drafting, and drawing tools and materials.

Offered: Fall, Spring, Summer.

### IDE 152 Color and Lighting Theory

3 credit hours/ 3 periods (3 lec.)

Design concepts for interior design color and lighting. Includes vision, perception, color and lighting theories, color schemes, design concepts, techniques and applications, and psychological implications.

Prerequisite(s): IDE 111.

Offered: Spring.

### IDE 155 Space Planning I

3 credit hours/ 4 periods (2 lec., 2 lab)

Theory and methods of information gathering for design projects. Includes programming and planning, research and observation, diagramming methods, skills in drafting, and human behavior.

Prerequisite(s): IDE 122.

Offered: Fall, Spring.

### IDE 160 Fabrics for Interiors

3 credit hours/ 4 periods (2 lec., 2 lab)

Analysis, evaluation, and application of fabrics. Includes history of fabrics, fiber content, fabric construction, fabric finishes and techniques, and fabric trends.

Prerequisite(s): IDE 111.

Offered: Fall, Spring.

### IDE 196 Independent Study in Interior Design

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent readings or special projects. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### IDE 212 History of Interior Arch & Furniture: Egyptian Period -1900

3 credit hours/ 3 periods (3 lec.)

Survey of historical architecture, interior treatments, furnishings, and decorative arts. Includes the Classics, Middle Ages, Renaissance, and Early American.

Offered: Fall, Spring.

### IDE 213 History of Interior Architecture & Furniture from 1900-Pres

3 credit hours/ 3 periods (3 lec.)

Survey of historical architecture, interior treatments, furnishings, and decorative arts. Includes cultural aspects and characteristics of early Twentieth Century, Modernism Period, Revolution and the Avant-Garde, Contemporary designs, and issues and trends.

Offered: Spring.

### IDE 220 Interior Methods and Materials

3 credit hours/ 3 periods (3 lec.)

Elements and applications of interior products. Includes specifications for finishes and materials, estimating techniques for interiors, product materials for interiors, environmental concerns, and design solutions.

Prerequisite(s): IDE 100.

Offered: Fall.

### IDE 222 Visual Communications II

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of IDE 122. Includes advanced techniques in black and white and color, measured drawings, fundamental design in visual communications, and rendering for interior design.

Prerequisite(s): IDE 122.

Recommendation: Completion of CAD 158 before enrolling in this course.

Offered: Spring.

### IDE 230 Interior Design Business and Professional Practices

3 credit hours/ 3 periods (3 lec.)

Professional business principles and practices for the interior designer. Includes business action plan, structure, professional services, design firm model, business principles, contractual relationships, and business correspondence.

Prerequisite(s): IDE 111.

Recommendation: Assessment in Mathematics at the MAT 086 level or higher before enrolling in this course.

Offered: Spring.

### IDE 255 Space Planning II

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of IDE 155. Includes programming and planning review, advanced research and observation, advanced diagramming methods illustrating design concepts, advanced drafting including commercial interiors, measurement of human psychological and sociological factors, and presentations.

Prerequisite(s): IDE 122, 155.

Recommendation: Completion of CAD 158 before enrolling in this course.

Offered: Spring.

### IDE 256 Human and Environmental Design

3 credit hours/ 3 periods (3 lec.)

Theories of human factors and environmental issues relating to interior design. Includes design problems, built environment, health, safety and welfare, materials, finishes, fabrications, and human factors.

Prerequisite(s): IDE 155.

Offered: Fall.

### IDE 280 Interior Design Portfolio Development

1 credit hour/ 1 period (1 lec.)

Identification of portfolio content. Includes project parameters, procedures and methods, portfolio content, and critique.

Recommendation: Completion of IDE 255 before enrolling in this course or concurrent enrollment.

Offered: Spring.

## INTERNATIONAL BUSINESS STUDIES

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### IBS 120 Cultural Environment of International Business

3 credit hours/ 3 periods (3 lec.)

Examination of the cultural values of the foreign country in comparison to those of the United States. Includes social and religious customs, roles of men and women, attitudes toward time, humor, drugs and alcohol, and patterns of communication. Includes political, educational and legal structures, health care values, attitudes toward shopping and conducting business, business structure, ethics and values.

Offered: Spring.

### IBS 121 Elementary Spanish for Business I

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish with a primary focus on language used in a variety of business situations. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

Information: Same as SPA 121.

Offered: May not be offered this year, check class schedule.

### IBS 122 Elementary Spanish for Business II

4 credit hours/ 4 periods (4 lec.)

Continuation of IBS 121. Includes complex oral and written forms, grammatical structures, and language used in a variety of business situations. Includes interpersonal business transactions and geographical and cultural awareness.

Prerequisite(s): IBS 121.

Information: Same as SPA 122.

Offered: May not be offered this year, check class schedule.

### IBS 135 The International Career

1 credit hour/ 1 period (1 lec.)

International complexities of the work force within American businesses. Includes the international environment and the global labor market, global changes and understanding the requirements of the international work force, and strategies for obtaining an international job.

Offered: Fall.



**IBS 140 Basic Techniques of International Trade**

3 credit hours/ 3 periods (3 lec.)

Principles and overview of international trade. Includes the international business plan, basic terms, political and legal factors of export trade, U.S. and foreign government regulations, preparation of export documentation and freight forwarding procedures. Also includes export banking, foreign trade zones in international trade, export trading companies, communicating with foreign firms, and exporting to specific geographic areas.

Offered: Spring.

**IBS 162 Controversial Global Issues**

1 credit hour/ 1 period (1 lec.)

This course explores the changing nature of the international arena and looks at controversial world issues as they relate to the international business context. Includes population growth, quality of life and consumption, the market economy, and global resources and the environment. Also includes technology, information and innovation, the globalization of culture, and doing business in the third world.

Offered: Spring.

**IBS 170 Doing Business with Mexico**

1 credit hour/ 1 period (1 lec.)

Explores the complexities in the relationship between the United States and Mexico. Offers a general perspective on Mexico's historical background, economic development, and business culture. Includes current conditions, categories of business, trade, maquiladoras, the bureaucracy, general culture characteristics, and communication.

Offered: May not be offered this year, check class schedule.

**IBS 280 International Field Projects**

2-6 credit hours/ 4-16 periods (1 lec., 3-15 lab)

Field excursions, lectures, interviews and communication within international settings. Includes close interaction with public and private sector representatives, cultural visits, and foreign language exposure. Also includes emphasis on development of economic, cultural and human relationships with foreign communities.

Recommendation: Consent of instructor before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**IBS 290 International Business Experience**

1-5 credit hours/ 3-7 periods (1-4 lec., 2-3 lab)

Supervised international business experience for students from another country. Instructor-coordinators work with students and their supervisors.

Information: Variable credit is available by special arrangements.

Offered: May not be offered this year, check class schedule.

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**INTERPRETER TRAINING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**ITP 105 Beginning Fingerspelling and Numbers**

2 credit hours/ 2 periods (2 lec.)

Enhancement of receptive and expressive sign language skills, methodology, theory, and application. Includes manual alphabet, numbers, basic monetary designations, basic mathematical functions, states, major cities, and calendar designations. Also includes common acronyms, lexicalized fingerspelled words, and basic address information.

Prerequisite(s): SLG 102 and REA 075.

Information: Additional lab hours are required outside of regularly scheduled class.

Offered: Fall, Spring.

**ITP 200 Introduction to the Deaf Community**

4 credit hours/ 4 periods (4 lec.)

The history of American Sign Language (ASL), the deaf community, and the experience of deaf individuals. Includes deafness, deaf communities, education, organizations of the deaf, communication modes, legislation, technological changes, cultural values, norms affecting the deaf community.

Prerequisite(s): SLG 202 and WRT 102.

Offered: Spring.

**ITP 203 Linguistics of American Sign Language**

3 credit hours/ 3 periods (3 lec.)

Introduction to the linguistic structure of American Sign Language (ASL). Includes history, language requirements, communication systems, assimilation/symmetry, ASL and English comparisons, time/tense indicators, semantics, morphology, syntax, phonology, modulation/inflection and classifiers/SASes. Also includes conjunctions, reality principle, conversational regulators, ASL research topics, gloss/transcription, current issues, and linguistic research paper.

Prerequisite(s): SLG 202 and WRT 102.

Information: Student is required to write a linguistic research paper.

Offered: Fall.

**ITP 205 Advanced Fingerspelling and Numbers**

2 credit hours/ 2 periods (2 lec.)

Advanced receptive and expressive fingerspelling and number skills. Includes lexicalized fingerspelling, related theories/methodologies, numbers, advanced monetary designations, advanced mathematical functions, acronyms for deaf related organizations and services, common abbreviations, commonly fingerspelled words, major cities, and proper nouns.

Prerequisite(s): ITP 105 and SLG 101.

Information: Additional lab hours are required outside of regularly scheduled class.

Offered: Fall, Spring.

**ITP 210 Introduction to Interpreting**

4 credit hours/ 4 periods (4 lec.)

Introduction to the field and role of a sign language interpreter. Includes defining the client(s), sign language systems and situational assessments, comparative linguistic features of American Sign Language (ASL) and English, history of spoken and sign language interpreters, certification of sign language interpreters, and prerequisite knowledge and skills. Also includes the profession of an interpreter, interpreter role and ethics, process of interpreting, settings, and assignment related topics.

Prerequisite(s): SLG 202 and WRT 102.

Offered: Fall.

**ITP 215 Classifiers and ASL Literature**

4 credit hours/ 4 periods (4 lec.)

This course is a continuation of the major grammatical features of American Sign Language (ASL) to develop communicative and interactive competencies in the culture and language of the deaf. Includes a focus on ASL literature by introducing students to ASL storytelling and poetic techniques, film analysis, story analysis, and its techniques. Also includes ASL narratives, classifiers and size and shape specifiers (SSAses), and perspectives.

Prerequisite(s): SLG 202 and WRT 102.

Information: This course is taught in ASL and utilizes receptive skills through ASL literature and poetic videotapes. Students are expected to experiment with ASL storytelling and the use of classifier techniques. Additional hours may be required outside of the regularly scheduled class.

Offered: Fall.

**ITP 220 Interpreting I**

4 credit hours/ 4 periods (4 lec.)

Practical experience in consecutive and simultaneous interpreting with increasingly complex and diverse materials. Includes applying the process of interpreting, discourse styles, assignment consideration, physical considerations, application of the Code of Ethics, and special populations and language considerations.

Prerequisite(s): ITP 210 and WRT 102.

Information: Additional lab hours may be required outside regularly scheduled class.

Offered: Spring.

**ITP 250 Interpreting II**

4 credit hours/ 4 periods (4 lec.)

Continuation of ITP 220. Continued development of expressive and receptive interpreting skills in educational and community situations. Includes practical considerations, interpreter's role, certification, communication systems, multiple roles, and code of ethics. Also includes interpreting, transliterating, idiomatic interpreting, sign invention, team interpreting, giving and receiving feedback, current issues, and environmental dynamics.

Prerequisite(s): ITP 220.

Information: Additional lab hours may be required outside of class.

Offered: Fall.

**ITP 268 Etymology**

3 credit hours/ 3 periods (3 lec.)

Designed to improve and increase English vocabulary and conceptual ASL correlates for the sign language interpreter. Includes word origins, common word families, contextual vocabulary building, and English idioms.

Prerequisite(s): REA 075 and SLG 202.

Offered: Spring.

**ITP 270 Beginning Sign to Voice**

4 credit hours/ 4 periods (4 lec.)

Interpreting basic sign language structures into the spoken word. Includes voicing considerations, linguistic/syntax, American Sign Language (ASL)/English comparisons, pre- and post-situational assessment, giving/receiving feedback, and professional issues.

Prerequisite(s): ITP 210 and SLG 202.

Information: Additional lab hours outside of class are required.

Offered: Spring.

**ITP 280 Advanced Sign to Voice**

4 credit hours/ 4 periods (4 lec.)

Interpreting complex sign language structures into the spoken word. Includes voicing considerations, team interpreting, registers, word/phrase selection, current issues, and environmental dynamics.

Prerequisite(s): ITP 270.

Information: Additional lab hours are required outside of regularly scheduled class.

Offered: Fall.

### ITP 285 Educational Interpreting/Transliterating

4 credit hours/ 4 periods (4 lec.)

Interpreting in educational settings. Includes transliterating, professional readiness, settings and expectations, and legal and ethical issues.

Prerequisite(s): ITP 250 or 280.

Information: Additional hours may be required outside of regularly scheduled class.

Offered: Spring.

### ITP 289 Special Topics in Interpreting

2 credit hours/ 2 periods (2 lec.)

Continued development of interpreting and transliterating skills and receptive and expressive skills refinement in consecutive and simultaneous interpreting situations. Includes specialized settings, support systems, situational and language assessment, facilitating the communication process, and preparation for national certification exams.

Prerequisite(s): ITP 250 and 280.

Offered: Spring.

### ITP 290 Interpreter Training Field Experience

2 credit hours/ 6 periods (1 lec., 5 lab)

Supervised interpreting opportunities in community settings. Includes selection criteria, completion of written assignments, problem solving, site orientation, student performance evaluations, observation of professional interpreters, code of ethics in practice, professional job expectations, and current issues.

Prerequisite(s): ITP 250.

Offered: Spring.

## ITALIAN

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### ITA 050 Social and Cultural Italian: Food Traditions and Dining

2 credit hours/ 2 periods (2 lec.)

Introduction to the Italian language presented in the context of food traditions and dining. Includes food in the culture of Italy, language of groceries and ingredients, and conversation for dining.

Offered: May not be offered this year, check class schedule.

### ITA 051 Social and Cultural Italian: Travel

2 credit hours/ 2 periods (2 lec.)

Introduction to the Italian language presented in the context of travel, from planning a trip to returning home. Includes geography and traveling in Italy, words and phrases related to transportation, conversation for hotel, restaurants, and tourists services, and language of health and hygiene.

Offered: May not be offered this year, check class schedule.

### ITA 052 Social and Cultural Italian: Cinema

2 credit hours/ 2 periods (2 lec.)

Viewing and discussing Italian films from the postwar period to the present. Includes cinema in postwar Italy, major directors in the period of "Neo-realism", major actors of the period, and ironic and comic cinema. Also includes the cultural values expressed through film.

Information: No prior knowledge of Italian is required, since sub-titles are provided.

Offered: May not be offered this year, check class schedule.

### ITA 055 Language Study and Travel in Spain, Italy, and France

2 credit hours/ 2 periods (2 lec.)

Introduction to French, Italian, and Spanish language presented in the context of travel through these three countries. Includes travel in Spain, Italy, and France, lodging, money, and transportation terminology, culinary traditions, restaurants and markets, and travel destinations.

Information: Prior language knowledge is not required. Same as FRE/SPA 055.

Offered: May not be offered this year, check class schedule.

### ITA 101 Elementary Italian I

4 credit hours/ 4 periods (4 lec.)

Introduction to the Italian language. Includes foundations of Italian language, basic Italian grammar, structures and tenses, basic compositions in Italian, formulating answers in Italian, and Italian culture.

Offered: Fall, Spring.

### ITA 102 Elementary Italian II

4 credit hours/ 4 periods (4 lec.)

Continuation of ITA 101. Includes additional Italian grammar and structure, transactions and topics in Italian, Italian compositions, manipulating meaning from readings, and interpreting meaning from listening.

Prerequisite(s): ITA 101.

Offered: Fall, Spring.

### ITA 201 Intermediate Italian I

4 credit hours/ 4 periods (4 lec.)

Continuation of ITA 102. Includes intermediate Italian grammar structures, response to unanticipated questions, political, economic, and social vocabulary in readings and writings, intermediate literary interpretation, complex essays in Italian, intermediate level of Italian culture, and extracting meaning from listening.

Prerequisite(s): ITA 102.

Offered: Fall, Spring.

### ITA 202 Intermediate Italian II

4 credit hours/ 4 periods (4 lec.)

Continuation of ITA 201. Includes additional intermediate Italian grammar and sentence structures, communication and cultural topics, responses to complex written form, listening practice, Italian performance, and additional examination of Italian culture.

Prerequisite(s): ITA 201.

Offered: Fall, Spring.

## JAPANESE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### JPN 085 Introductory Japanese

4 credit hours/ 4 periods (4 lec.)

Elementary Japanese conversation. Includes an overview of the Japanese language, writing and pronunciation, and useful daily expressions. Also includes expressions in daily life and Japanese culture and communication.

Offered: Fall, Spring, Summer.

### JPN 101 Elementary Japanese I

5 credit hours/ 5 periods (5 lec.)

Introduction to the Japanese language. Includes an overview of the Japanese language, speaking and listening, grammar, personal transactions, and the cultural context within which Japanese conversation takes place. Also includes writing and reading of Hiragana, Katakana, and 75 new Kanji characters.

Offered: Fall, Spring, Summer.

### JPN 102 Elementary Japanese II

5 credit hours/ 5 periods (5 lec.)

Continuation of JPN 101. Includes oral and written forms, grammatical structures, and interpersonal transactions. Also includes the cultural component of communication competency.

Prerequisite(s): JPN 101.

Offered: Fall, Spring.

### JPN 108 Japanese Anime

3 credit hours/ 3 periods (3 lec.)

Historical and modern anime will be examined as an indice of cultural/economic changes in Japanese/Western contact. Japanese culture reflected in popular art form will be analyzed with an emphasis on delineating ways in which this analysis can be used to facilitate communication between Japan and the West.

Information: This course is taught in English.

Offered: Fall.

### JPN 109 Japanese Anime and Fantastic Literature

3 credit hours/ 3 periods (3 lec.)

Historical and modern Japanese fantastic literature will be examined as an indice of cultural and economic changes brought about by Japanese and Western contact. Includes Japanese anime and the analysis of specific areas of Japanese anime and the analysis of specific areas of Japanese culture to facilitate understanding between Japan and the West.

Information: This course is taught in English.

Offered: Spring.

### JPN 201 Intermediate Japanese I

5 credit hours/ 5 periods (5 lec.)

Continuation of Japanese 102. Includes speaking and listening, grammar, personal transactions, and the cultural context to which Japanese conversations take place. Includes reading and writing Hiragana, Katakana, and 250 Kanji characters.

Prerequisite(s): JPN 102.

Offered: Fall, Spring.

### JPN 202 Intermediate Japanese II

5 credit hours/ 5 periods (5 lec.)

Continuation of Japanese 201. Includes speaking and listening, grammar, personal transactions, and using more complex sentence structure in a cultural context within which Japanese conversations take place. Also includes Hiragana, Katakana, and 365 Kanji characters.

Prerequisite(s): JPN 201.

Offered: Fall, Spring.

**JPN 245 Japanese Culture and Communication**

3 credit hours/ 3 periods (3 lec.)

Theories on the impact of culture on communications with the Japanese applied to Japanese communication styles and the Japanese language. Includes Japanese communication dimensions, and barriers to successful intercultural communication between the Japanese and others. Also includes an overview of the Japanese language, cultural factors affecting communication between the Japanese and others, and improving communication with the Japanese. Information: This course is taught in English.

Offered: May not be offered this year, check class schedule.

**JOURNALISM**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**JRN 101 Introduction to Reporting and Media Writing**

3 credit hours/ 3 periods (3 lec.)

Introducing to news reporting. Includes journalism as a career, the journalist and the organization of the newsroom, defining news, news style, elements of a news story, fundamentals of writing news, and news gathering and reporting. Also includes organizing and writing the story, revision of stories, and ethics, libel and media law.

*Prerequisite(s): WRT 100 or required score on the writing assessment test.*

Offered: Fall, Spring.

**JRN 102 Survey of Media Communications**

3 credit hours/ 3 periods (3 lec.)

Survey of theory, nature, function, and impact of today's mass media. Includes a review and evaluation of important journalists' work and of various media and auxiliary industries, such as book and magazine publishing, newspapers, radio, television, film, recordings, advertising and public relations. Also includes an overview of related career options.

Offered: Fall, Spring.

**JRN 110 Introduction to Public Relations**

3 credit hours/ 3 periods (3 lec.)

Introduction to public relations. Includes principles, practices, theory, ethics and law, and techniques for defining and dealing with internal and external public. Also includes writing, message dissemination, development of media networks, and media relations, organizing special events and news conferences, research for planning and evaluation, and group projects to develop and evaluate a public relations plan.

*Prerequisite(s): JRN 101.*

Offered: May not be offered this year, check class schedule.

**JRN 180 Newspaper Business Procedures**

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to principles and business procedures of newspapers in general and of the weekly student newspaper. Includes marketing and advertising sales, circulation, record keeping and simple accounting for print and online editions. Also includes extensive use of computers, scanners and software to invoice ads, post payments and deposits, write commission reports, and design advertisements.

Offered: May not be offered this year, check class schedule.

**JRN 185 Newspaper Publishing**

3 credit hours/ 9 periods (9 lab)

Publication of the college's weekly student newspaper and online edition of the newspaper. Includes news judgment, news gathering, news and editorial writing, editing and headline writing, photography, page design and computer pagination, advertising, and other publication activities. Also includes newsroom management and ethical and legal considerations.

*Prerequisite(s): JRN 101.*

Information: May be taken three times for a maximum of nine credit hours.

Offered: Fall, Spring.

**JRN 186 Writing for the Web**

3 credit hours/ 3 periods (3 lec.)

Introduction to basic concepts and techniques for writing on the World Wide Web. Includes introduction to Web technology, basic journalistic techniques useful for Web writing, Hypertext Markup Language (HTML) for Web editing software, linear forms, nonlinear forms, clicking and scrolling effect on writing, process for writing and writing online, tips for writing online, citations, communication law in the electronic age, and journalism ethics in the new media.

*Prerequisite(s): WRT 100 or required score on writing assessment test.*

Offered: May not be offered this year, check class schedule.

**JRN 187 Introduction to Electronic Publishing in Journalism/Media**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to electronic (on-line) publishing with applications to new media. Includes work with computers, desktop publishing, imaging, and internet

software, HTML formatting, and designing Web pages/sites to create camera ready publications and maintain a Web site. Also includes methods to navigate and do research on the Internet and the World Wide Web, concepts, principles and ethics of publishing on the Internet, responsibilities of an electronic journalist, disinformation and privacy issues.

*Prerequisite(s): JRN 101.*

Offered: May not be offered this year, check class schedule.

**JRN 188 DeskTop Publishing for Journalism**

3 credit hours/ 4 periods (2 lec., 2 lab)

DeskTop publishing for media communications. Includes basic principles of page layout using text and graphics applied to journalistic and electronic media. Also includes designing and editing tabloid newspapers, brochures, newsletters, scoreboards, slide presentations, and transparencies.

Offered: May not be offered this year, check class schedule.

**JRN 189 Newspaper Graphics**

2 credit hours/ 3 periods (1 lec., 2 lab)

Application of principles and techniques of newspaper layout, design elements, typography, line art, illustrations, editorial graphics and photographs in journalism and to the weekly student newspaper. Includes extensive use of computers, scanners and desktop publishing software and applications to online editions.

Offered: May not be offered this year, check class schedule.

**JRN 196 Journalism Independent Projects: Journalism/Media Publishing**

1-4 credit hours/ 3-12 periods (3-12 lab)

Students independently continue their development in journalism with the help of a faculty member.

Information: Six credit hours of JRN classes and consent of instructor is required before enrolling in this course. May be taken three times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**JRN 199 Introduction to Co-op: Journalism**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

*Prerequisite(s): JRN 186, 187, and 188.**Corequisite(s): JRN 199WK*

Offered: Fall, Spring.

**JRN 199WK Co-op Work: Journalism**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

*Prerequisite(s): JRN 186, 187, and 188.**Corequisite(s): JRN 199*

Offered: Fall, Spring.

**JRN 230 Advanced Reporting**

3 credit hours/ 3 periods (3 lec.)

Advanced news gathering and news writing for reporting complex stories. Includes development of varied leads, review and practice in most types of basic news assignment, and focus on in-depth stories expanding what constitutes news. Includes alternate methods of news gathering, such as computer assisted and Internet research, observation and interviewing techniques, and document searches.

*Prerequisite(s): JRN 101.*

Offered: May not be offered this year, check class schedule.

**JRN 235 Writing/Reporting for Broadcast Journalism**

3 credit hours/ 3 periods (3 lec.)

Introduction to broadcast news writing and reporting for television and radio. Includes introduction to broadcast news, formats and readability, shifting from print to broadcast writing, broadcast copy, news gathering and reporting, reporting assignments and coverage, writing for radio newscast, writing for television newscast, television short packages, live shots and long packages, and ethics and the law.

*Prerequisite(s): JRN 101.**Recommendation: Completion of JRN 102 before enrolling in this course or concurrent enrollment.*

Offered: May not be offered this year, check class schedule.

**JRN 240 Editing, Layout, and Design**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and techniques of publication editing, layout, and design. Includes newsroom and other settings, copy and electronic editing, proofreading, headline writing, electronic page layout, typography and design, copyflow, and problems and responsibilities of editors. Also involves the extensive use of computers in the editing process.

*Prerequisite(s): JRN 101.*

Offered: May not be offered this year, check class schedule.



**JRN 260 Magazine and Feature Writing**

3 credit hours/ 3 periods (3 lec.)

Writing magazine and newspaper feature articles for publication. Includes the requirement to research, write and attempt to market an article or series of features.

Prerequisite(s): JRN 101.

Offered: May not be offered this year, check class schedule.

**JRN 270 Media Advertising and Public Relations**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and techniques of media advertising and public relations. Includes planning, sales and production. Also includes working in groups to produce a national and local advertising campaign and a public relations campaign.

Prerequisite(s): JRN 101.

Offered: May not be offered this year, check class schedule.

**JRN 280 Photojournalism**

3 credit hours/ 5 periods (2 lec., 3 lab)

Practical applications of photographic skills to communicate nonfiction stories and document life. Includes basic camera operations and use of lenses, film stocks, filters, flash, and scanners, computers and digital imaging software. Also includes ethical and legal considerations, analysis of photographs, cropping and sizing, layout of photo essays, and writing cutlines and captions.

Prerequisite(s): JRN 101.

Offered: Fall, Spring.

**JRN 281 Applied Photojournalism**

2 credit hours/ 3 periods (1 lec., 2 lab)

Application of photojournalistic concepts and techniques to complete assignments for the weekly student newspaper. Includes creating visual images for spot and general news, features, portraits, sports, sports and photo essays, writing cutlines and captions, and designing the layout of photo stories. Also includes use of film scanners, computers, and digital imaging software to size, crop and adjust images.

Recommendation: Completion of JRN 280 or equivalent experience before enrolling in this course.

Information: Access to a 35MM still film camera is required. Digital, still, and video cameras will be available.

Offered: May not be offered this year, check class schedule.

**JRN 285 Advanced Newspaper Publishing**

3 credit hours/ 9 periods (9 lab)

Advanced work on the college's weekly student newspaper and online editing of the newspaper. Includes advanced reporting, copy editing, page design, computer pagination, photo editing, newsroom management, and legal and ethical considerations.

Prerequisite(s): JRN 185.

Information: May be taken three times for a maximum of nine credit hours.

Offered: Fall, Spring.

**JRN 287 Advanced Electronic Publishing in Journalism/Media**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of JRN 187. Includes self evaluation of online knowledge and skills, advanced publishing technologies, advanced software for print/web, additional theory of electronic publishing, additional tours of local multimedia publishing operations, and capstone application: publication project in print, broadcast, and on the Internet

Prerequisite(s): JRN 187.

Offered: May not be offered this year, check class schedule.

**JRN 296 Journalism Independent Projects: Adv. Journalism/Media Publish**

1-4 credit hours/ 3-12 periods (3-12 lab)

Students independently continue their development in journalism with the help of a faculty member.

Prerequisite(s): JRN 196.

Information: Consent of instructor is required before enrolling in this course. May be taken three times for a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**JRN 299 Introduction to Co-op: Journalism**

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

Prerequisite(s): JRN 199.

Corequisite(s): JRN 299WK

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**JRN 299WK Co-op Work: Journalism**

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

Prerequisite(s): JRN 199.

Corequisite(s): JRN 299

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

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**KOREAN**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**KOR 101 Elementary Korean I**

4 credit hours/ 4 periods (4 lec.)

Introduction to Korean. Includes basic oral and written Korean language forms, basic Korean grammatical structures, reading simple text, and Korean cultures and traditions.

Offered: Fall.

**KOR 102 Elementary Korean II**

4 credit hours/ 4 periods (4 lec.)

Continuation of KOR 101. Includes additional phonetics in the Korean language, additional grammatical structures, reading additional simple text, and additional Korean culture and traditions.

Prerequisite(s): KOR 101.

Offered: Spring.

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**LANDSCAPE TECHNICIAN**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**LTP 119 Plants for Landscape Design I**

3 credit hours/ 3 periods (3 lec.)

Principles and techniques of plant usage and identification. Includes environment, landscape design, planting and plant care, plant taxonomy, usage, and selection.

Offered: Spring.

**LTP 129 Landscape Design I**

3 credit hours/ 3 periods (3 lec.)

Principles and techniques of landscape design. Includes site investigation, project requirements, preliminary design, design principles, and a final project.

Offered: Fall.

**LTP 139 Irrigation Design I**

3 credit hours/ 3 periods (3 lec.)

Design of turf, ornamental, and water conserving irrigation systems. Includes introduction to irrigation, system components and applications, environmental factors and issues, site information and client needs, basic irrigation drafting, and system layout and equipment selection.

Information: Intended for students and professionals interested in irrigation systems.

Offered: Spring.

**LTP 169 Plants for Landscape Design II**

3 credit hours/ 3 periods (3 lec.)

Continuation of LTP 119. Includes a review of plant usage principles and techniques, advanced plant identification materials, advanced material taxonomy, and advanced planting design.

Prerequisite(s): LTP 119

Offered: May not be offered this year, check class schedule.

**LTP 179 Landscape Design II**

3 credit hours/ 3 periods (3 lec.)

Continuation of LTP 129. Includes a review of principles and techniques, advanced project requirements and design principles, analysis of existing landscape installations, application of concepts from existing landscape installations, and an advanced final project.

Prerequisite(s): LTP 129

Offered: Spring.

**LTP 189 Irrigation Design II**

3 credit hours/ 3 periods (3 lec.)

Design of large-scale irrigation systems, such as apartment complexes, parks and roadway projects, using both conventional sprinkler and drip systems. Includes introduction to large scale systems, large scale system components and equipment selection, large scale irrigation factors and issues and site survey and analysis, system layout and hydraulic principles, and large scale irrigation plan preparation.

Prerequisite(s): LTP 139.

Offered: May not be offered this year, check class schedule.

**LTP 196 Independent Studies in Landscape Design**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent studies and projects in landscape design and technology. Content to be determined by conference between student and instructor.

Information: May be taken three times for a maximum of twelve credit hours.

Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.



## LATIN

### LAT 101 Elementary Latin I

4 credit hours/ 4 periods (4 lec.)

Introduction to the Latin language through reading and composition. Includes present tense, nominative and accusative cases, and 1st and 2nd declensions, ablative and vocative cases, present infinitives, 3rd declension, commands and questions, genitive and dative cases, adverbs, and relative pronoun, demonstrative, personal and reflexive pronouns, and imperfect and perfect tenses, pluperfect tense and 4th and 5th declensions, and topics in ancient Roman history and culture.

Offered: Fall, Spring.

### LAT 102 Elementary Latin II

4 credit hours/ 4 periods (4 lec.)

Continuation of LAT 101. Includes comparison of adjectives and irregular superlatives, present participle, future and future perfect tenses, and relative clauses, passive voice and perfect passive participle, subjunctive mood, clauses of purpose, and indirect commands, deponent verbs, ablative absolute, and future participle, and topics in ancient Roman history and culture.

Prerequisite(s): LAT 101.

Offered: Spring.

### LAT 201 Intermediate Latin I

4 credit hours/ 4 periods (4 lec.)

Continuation of LAT 102. Includes indirect questions and indirect statements, consecutive clauses, conditional clauses and main clauses with the subjunctive, cum and dum clauses, clauses of fearing, impersonal verbs, and gerunds, gerundive and relative clauses with the subjunctive, and topics in ancient Roman history and culture.

Prerequisite(s): LAT 102.

Offered: May not be offered this year, check class schedule.

### LAT 202 Intermediate Latin II

4 credit hours/ 4 periods (4 lec.)

Continuation of LAT 201. Includes selected speeches and letters of Cicero, selected passages from Caesar's Commentaries on the Gallic War, selected poems by Catullus, selected passages from Virgil's Aeneid, selected passages from Livy's History of Rome, and selected passages from the works of Ovid.

Prerequisite(s): LAT 201.

Offered: May not be offered this year, check class schedule.

## LAW ENFORCEMENT\*

\*Not open to the public. See Other Educational Programs chapter for more information.

### LEN 100 Careers in Law Enforcement

3 credit hours/ 3 periods (3 lec.)

Survey of careers and career paths in law enforcement. Includes exploration of the broad scope of job functions and opportunities in various law enforcement agencies. Also includes awareness of the selection criteria, life style, and necessary personal choices for a career in this field.

Offered: May not be offered this year, check class schedule.

### LEN 102 Communicating in Spanish in the Workplace

1-6 credit hours/ 1-6 periods (1-6 lec.)

Basic Spanish for easier communication with the Spanish speaking public. Includes conversational Spanish, work-related Spanish words, phrases, and idioms, and a survey of the cultures where the Spanish language is spoken.

Offered: May not be offered this year, check class schedule.

### LEN 105 Ethics and Leadership in Law Enforcement

3 credit hours/ 3 periods (3 lec.)

Principles of ethical behavior for law enforcement professionals. Includes establishing a leadership role within the community. Also includes the Law Enforcement Code of Ethics, and Canons of Police Ethics as a basis to establish trust and protect a positive image of law enforcement.

Offered: May not be offered this year, check class schedule.

### LEN 110 Multicultural Issues in Law Enforcement

3 credit hours/ 3 periods (3 lec.)

Exploration of the value of diversity in a law enforcement environment. Includes the standards and norms of different groups and individuals and how they impact the attitudes and behaviors. Also includes the need to adapt interactions without compromising established societal norms.

Offered: May not be offered this year, check class schedule.

### LEN 115 Interpersonal Relations in Law Enforcement

3 credit hours/ 3 periods (3 lec.)

Exploration of the interactions of law enforcement professionals with peers and the public. Includes the unique roles and expectations which occur when entering a law enforcement career. Also includes specific methods and techniques used in situational interactions.

Offered: May not be offered this year, check class schedule.

### LEN 120 Introduction to Law Enforcement

1 credit hour/ 1 period (1 lec.)

Overview of the components of the criminal justice system, their functions, responsibilities and interrelationships. Includes a historical perspective, and outline of regulatory agency functions, responsibilities, jurisdictional limitations, techniques of management and supervision, problem solving strategies, and the relationship between employee and supervisor. Also includes standards required of law enforcement personnel and the functions and responsibilities of the Arizona Peace Officer Standards and Training Board.

Information: Admission to the Law Enforcement Academy or consent of instructor is required.

Offered: May not be offered this year, check class schedule.

### LEN 125 Law and Legal Matters I

3 credit hours/ 3 periods (3 lec.)

Examination of the basic concepts, phrases and definitions needed to study criminal law. Includes an analysis of constitutional requirements, statutes and case law on search and seizure, the conditions under which an officer or citizen may make an arrest, an officer's duties and responsibilities prior to and during the arrest, and the rules of evidence. Also includes summonses and subpoenas, civil processes, and the functions of the various courts, agencies, and laws relating to juveniles.

Prerequisite(s): LEN 120.

Information: Admission to the Law Enforcement Academy or consent of instructor is required.

Offered: May not be offered this year, check class schedule.

### LEN 126 Law and Legal Matters II

3 credit hours/ 3 periods (3 lec.)

Continuation of LEN 125. Includes the proper techniques for giving effective police testimony, outline of the United States Constitution, Arizona Revised Statutes (ARS) Title 13, and a review of common civil and criminal liability facing law enforcement agencies and officers.

Prerequisite(s): LEN 125.

Offered: May not be offered this year, check class schedule.

### LEN 130 Patrol Procedures

3 credit hours/ 3 periods (3 lec.)

Study of the types, purposes and techniques of police patrol. Includes citizen protection, crime prevention, emergency and non-emergency situations, safely conducting a high risk vehicle stop, domestic disputes and managing crisis situations, mental illness and criminal behavior, crimes in progress, indicators of alcohol intoxication, and symptoms of medical conditions. Also includes use of police radio, hazardous materials, disasters, hate motivated acts, fires, and civil disputes.

Information: Admission to the Law Enforcement Academy or consent of instructor is required.

Offered: May not be offered this year, check class schedule.

### LEN 135 Traffic Enforcement and Investigation

3 credit hours/ 3 periods (3 lec.)

Introduction to the attitude and techniques essential in dealing effectively with traffic violators. Includes the effects of alcohol and drugs on drivers and techniques for obtaining evidence for successful prosecution, the legal basis of the Uniform Traffic Citation, specific techniques for stopping and approaching suspects in vehicles, traffic collision investigation, and proper methods for taking and recording evidence at the collision scene. Includes techniques for directing/controlling vehicular and pedestrian movements by means of hand signals, and applicable sections of the ARS relating to law enforcement authority.

Information: Admission to the Law Enforcement Academy or consent of instructor is required.

Offered: May not be offered this year, check class schedule.

### LEN 140 Criminal Investigation

4 credit hours/ 4 periods (4 lec.)

Principles common to all types of investigation. Includes conducting a proper search, sketching the crime scene, recording and preserving notes, packing and marking evidence for identification, synthesizing information into a final report, the functions of a crime laboratory, proper interviewing and questioning techniques, and methods of fingerprinting. Also includes investigating the more common sex crimes, procedures for investigating cases involving death, organized criminal activities, techniques used in the investigation of assault, burglary, robbery, auto theft, child abuse, missing persons, and narcotics and dangerous drug violations.

Information: Admission to the Law Enforcement Academy or consent of instructor is required.

Offered: May not be offered this year, check class schedule.

**LEN 145 Community and Police Relations**

2 credit hours/ 2 periods (2 lec.)

Benefits and methods of developing positive police-community relations and recognizing cultural differences within the community. Includes the emotional and behavioral indicators of crime victims, personal communication, crime prevention functions of the patrol officer and various crime prevention programs. Information: Admission to the Law Enforcement Academy or consent of instructor is required.

Offered: May not be offered this year, check class schedule.

**LEN 154 Federal Law Enforcement Operations for Border Patrol**

4 credit hours/ 4 periods (4 lec.)

Training in investigative and operational processes and procedures in Federal Law Enforcement Operations for Border Patrol Officers. Includes an overview of border patrol investigations and operations, specialized techniques, and field operations.

Information: Consent of the U.S. Border Patrol Training Sector is required.

Offered: May not be offered this year, check class schedule.

**LEN 155 Immigration and Nationality Law for Border Patrol**

3 credit hours/ 3 periods (3 lec.)

Survey of legal issues to immigration and nationality law for Border Patrol officers. Includes nationality law, immigration law, liability issues, and civil rights issues. Also includes basic issues related to constitutional law, statutory authority, and criminal law.

Information: Consent of the U.S. Border Patrol Training Sector is required.

Offered: May not be offered this year, check class schedule.

**LEN 159 Firearms and Unusual Weapons**

1 credit hour/ 1 period (1 lec.)

Overview of firearms and unusual weapons for border patrol officers. Includes mechanical and safety features of service firearms and unusual weapons. Also includes portrayals of how various street weapons are used and carried; officer survival techniques involving edged weapons; and officer patrol preparation for surviving an armed encounter.

Offered: May not be offered this year, check class schedule.

**LEN 160 Life Management Skills for Law Enforcement**

3 credit hours/ 3 periods (3 lec.)

Overview of laws enforcement as a hazardous and stressful occupation. Includes methods of dealing with everyday problems of life at home and at work. Also includes the administration of self-assessment and techniques to help attainment of a desirable lifestyle.

Offered: May not be offered this year, check class schedule.

**LEN 163 Research and Planning**

3 credit hours/ 3 periods (3 lec.)

Introduction to research methods and planning concepts. Includes problem solving steps, research design, information gathering techniques, and oral and written reports.

Offered: May not be offered this year, check class schedule.

**LEN 180 Introduction to Private Security**

3 credit hours/ 3 periods (3 lec.)

Introduction to private security profession. Includes law enforcement services, responsibilities and workplace skills, legal matters, patrol procedures, search and seizure, crime scene management, and crime prevention techniques.

Offered: May not be offered this year, check class schedule.

**LEN 181 Loss Prevention and Plain Clothes Security**

3 credit hours/ 3 periods (3 lec.)

Introduction to the problems of internal and external theft. Includes shoplifting, employee theft, workplace safety, laws of arrest, disease exposure, and incident documentation. Also includes personal safety measures, electronic surveillance, and the court process.

Offered: May not be offered this year, check class schedule.

**LEN 250 Basic Follow-up Investigations**

3 credit hours/ 3 periods (3 lec.)

Survey of basic Follow-up investigative resources and techniques utilized by detectives in law enforcement. Includes evidence collection, role of the County Attorney, laws regarding search and seizure, laws concerning statements and confessions, obtaining a search warrant, media interviews, and safety equipment. Also includes crime scene management and interrogation techniques.

Offered: May not be offered this year, check class schedule.

**LEN 251 Internal Investigations**

3 credit hours/ 3 periods (3 lec.)

Basic investigative techniques necessary to successfully identify, investigate, and document employee conduct and/or behavior, both administratively and criminally. Includes formulating an investigative plan, managing the investigation, identifying and collecting evidence, and documenting the investigation.

Offered: May not be offered this year, check class schedule.

**LEN 260 Financial Analysis in Criminal Justice**

4 credit hours/ 4 periods (4 lec.)

Techniques of financial analysis for criminal justice applications. Includes sources of financial information, analysis of financial documents, and preparation of schedules to provide evidence of financial crimes.

Offered: May not be offered this year, check class schedule.

**LEN 270 Principles of Law Enforcement Supervision**

3 credit hours/ 3 periods (3 lec.)

Basic skills and concepts of law enforcement supervision. Includes leadership, reports, performance communication, staff skills, police liability, community problem solving, and customer service.

Offered: May not be offered this year, check class schedule.

**LEN 271 Skills for Community-Oriented Policing**

4 credit hours/ 4 periods (4 lec.)

Provides the basis for effective interactions between law enforcement officers and the community members. Includes an introduction to the community policing philosophy, conflict resolution, personal accountability, preparing for change, and interpersonal skills. Also includes fundamentals of crime prevention.

Offered: May not be offered this year, check class schedule.

**LEN 274 Supervision of Community-Oriented Policing**

3 credit hours/ 3 periods (3 lec.)

Examination of the skills needed to supervise a basic community-oriented policing program. Includes various perspectives of community-oriented policing, team building, empowerment, time management, public speaking, and situational leadership. Also includes the appropriate organizational structure, community assessment, and strategic planning.

Offered: May not be offered this year, check class schedule.

**LEN 280 General Instructor**

3 credit hours/ 3 periods (3 lec.)

Arizona Police Officer Standards and Training General Instructor certification. Includes demonstration and written requirements.

Offered: May not be offered this year, check class schedule.

**LEN 281 Field Training Officer**

2 credit hours/ 2 periods (2 lec.)

Roles and duties of the training officer in law enforcement. Includes an overview of the law enforcement training program, its history, structure, and function.

Offered: May not be offered this year, check class schedule.

**LEN 282 Incident Command Instructor**

1 credit hour/ 1 period (1 lec.)

Incident Command System (ICS) training for instructors. Includes leadership, management responsibilities, incident objectives and demobilization and post incident analysis. Also includes the function of operations, logistics, planning, and finance.

Offered: May not be offered this year, check class schedule.

**LEN 290 Law Enforcement Field Experience**

3 credit hours/ 15 periods (15 lab)

Supervised placement in community-oriented policing. Includes development, implementation, and evaluation of a project in the community.

*Prerequisite(s):* LEN 274, 275.

Offered: May not be offered this year, check class schedule.

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**LITERATURE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**LIT 124 Introduction to Writers of the Southwest**

3 credit hours/ 3 periods (3 lec.)

Introduction to multicultural short stories, poetry, and creative non-fiction of contemporary Southwestern writers. Includes introduction to Mexican-American writers of the Southwest, American Indian writers of the Southwest, Anglo and other writers of the Southwest, and an introduction to written works.

Information: Students do not need to have a writing prerequisite.

Offered: Fall.

**LIT 174 Introduction to Native American Writings**

3 credit hours/ 3 periods (3 lec.)

Study of Native American texts, including autobiographical writings, short stories, and nonfiction. Includes introduction to historical and cultural contexts, themes and issues addressed by Native American authors, Native American narratives, and reports and presentations.

Offered: May not be offered this year, check class schedule.

**LIT 224 Southwestern Literature**

3 credit hours/ 3 periods (3 lec.)

Multicultural short stories, novels, poetry, and creative non-fiction of contemporary Southwestern writers. Includes Mexican-American writers of the Southwest, American Indian writers of the Southwest, Anglo and other writers of the Southwest, and written works. Also includes comparisons of social, political, and environmental themes in different cultures.

Prerequisite(s): WRT 102 or 108.

Offered: Fall

**LIT 231 Introduction to Shakespeare**

3 credit hours/ 3 periods (3 lec.)

Investigation of a number of Shakespeare's major works. Includes sonnets, comedies, histories, and tragedies. Also includes history, social and cultural conditions, literary background, staging, and writing.

Prerequisite(s): WRT 102 or 108.

Offered: Fall, Spring.

**LIT 237 Women's Literature**

3 credit hours/ 3 periods (3 lec.)

Study of literature written by women. Includes literary forms, historical, multicultural, and global context, literary criticism, and intertextualities.

Prerequisite(s): WRT 102 or 108.

Offered: May not be offered this year, check class schedule.

**LIT 240 American Literature of Opposition**

3 credit hours/ 3 periods (3 lec.)

Protest and anti-establishment literature of the nineteenth and twentieth centuries in a variety of genres and media. Includes oppositional works from across the political and cultural spectrums. Also includes essay writing, and critical thinking. May include contemporary Internet and alternative media.

Prerequisite(s): WRT 102 or 108.

Offered: May not be offered this year, check class schedule.

**LIT 260 Major British Writers**

3 credit hours/ 3 periods (3 lec.)

Representative selection of works by major authors. Includes a range of periods and types of literature.

Prerequisite(s): WRT 102 or 108.

Offered: May not be offered this year, check class schedule.

**LIT 261 Modern Literature**

3 credit hours/ 3 periods (3 lec.)

Critical analysis of literature of the modern period and from a variety of nations and cultures. Includes analyzing literary texts for meaning and form, understanding the contexts of literature, and writing about literature. Also includes selections from various literary genres, which may include fiction, drama, and poetry, as well as other literary forms.

Prerequisite(s): WRT 102 or 108.

Offered: Fall, Spring, Summer.

**LIT 262 American Poets**

3 credit hours/ 3 periods (3 lec.)

Study of the voices and visions of American poets. Includes American poetic visions, distinct styles and voices of poets, and writing assignments.

Prerequisite(s): WRT 102 or 108.

Offered: Fall, Spring.

**LIT 265 Major American Authors**

3 credit hours/ 3 periods (3 lec.)

Survey of selected works by major American authors from the colonial period to the present. Includes extensive writing and reading and emphasizes relating works to their social and historical contexts. Includes analysis of literary texts of various genres, such as poetry, drama and fiction, for meaning and form.

Prerequisite(s): WRT 102 or 108.

Offered: Fall, Spring.

**LIT 266 World Drama**

3 credit hours/ 3 periods (3 lec.)

Major dramatic works. Includes literary forms, historical context, psychological and moral implications of the literature, and cultural significance of plays.

Prerequisite(s): WRT 102 or 108.

Offered: May not be offered this year, check class schedule.

**LIT 267 World Literature: Narrative**

3 credit hours/ 3 periods (3 lec.)

Multicultural readings of great narrative works of western literary tradition. Includes an introduction to narrative literature and works from major periods, such as ancient, classical, renaissance, and romantic, up to and including present. Also includes comparisons of form and theme to works from diverse cultural traditions, and an emphasis on verbal and written analysis of cultural and historical significance.

Prerequisite(s): WRT 102 or 108.

Offered: Spring.

**LIT 274 Native American Literature**

3 credit hours/ 3 periods (3 lec.)

A survey of Native American oral stories, autobiographical writings, fiction, poetry, and nonfiction. Includes historical and cultural contexts, major themes and issues in contemporary Native American literature, literary forms and techniques, and critical essays.

Prerequisite(s): WRT 102 or 108.

Offered: Spring.

**LIT 289 Literature and Film**

3 credit hours/ 3 periods (3 lec.)

Criticism of film's dramatic forms, elements and genres. Includes development of film as an art form, comparative approaches to literature and film, performed drama, critical analysis and film production personnel.

Prerequisite(s): WRT 102 or 108.

Offered: Fall, Spring.

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**MACHINE TOOL TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MAC 100 Introduction to Machine Tool**

3 credit hours/ 3 periods (3 lec.)

Principles and procedures for basic machine tool operations. Includes careers in manufacturing, machine tool history, safety, materials, manufacturing process planning, measurement, layout tools and procedures, principles of metal cutting, bench and hand tools, power saws, drill presses, and abrasive machine.

Offered: Fall, Spring.

**MAC 110 Manual Machine Shop**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to basic machine shop practices. Includes safety, lathes, vertical milling machines, and grinding machines.

Prerequisite(s): MAC 100.

Information: Prerequisite maybe waived with a score of 80% or better on the Machine Tool assessment test. See a machine tool instructor or advisor for prerequisite information.

Offered: Fall, Spring, Summer.

**MAC 125 Mechanical Inspection**

4 credit hours/ 6 periods (2 lec., 4 lab)

Principles and applications of dimensional measurement. Includes line graduated measuring instruments, fixed gages, gauge blocks, comparative measurements, optical comparators and projectors, angle measurement, straightness, flatness, and perpendicularity measurement, and coordinated measuring machines.

Prerequisite(s): GTM 105, and MAC 110.

Information: Prerequisite maybe waived with industry experience. See a machine tool instructor for prerequisite information.

Offered: Fall, Spring.

**MAC 130 Jig and Fixture Design**

3 credit hours/ 3 periods (3 lec.)

Design and application of tools, jigs, and fixtures for basic metal working. Includes basic types and functions of jigs and fixtures, design economics, design and construction of jigs and fixtures, specialized workholding tooling.

Prerequisite(s): MAC 110.

Information: Prerequisite maybe waived with industry experience. See a machine tool faculty instructor for prerequisite information.

Offered: Fall, Spring.

**MAC 140 Introduction to Electrical Discharge Machining**

4 credit hours/ 6 periods (2 lec., 4 lab)

Application of electrical discharge machining (EDM) in industry today. Includes overview of EDM, EDM machines and processes, spark generation and dielectric fluids, electrodes, and surface finishes.

Prerequisite(s): MAC 110.

Information: Prerequisite maybe waived with Industry experience. See a machine tool instructor for prerequisite information.

Offered: Fall.

**MAC 150 Computer Numerical Control (CNC) Mill Programming I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Operations and procedures for automated machining systems. Includes Numerical Control (NC) and Computer Numerical Control (CNC) machining system, positioning and coordinate systems used in NC/CNC programming, part programming, diagnosis and correction of programming errors, and programming procedures.

Prerequisite(s): GTM 105 and MAC 110.Recommendation: Completion of CAD 101 before enrolling in this course.

Information: Industry experience may be substituted for prerequisite requirements. See a machine tool instructor for prerequisite information.

Offered: Fall, Spring.



**MAC 155 Computer Numerical Control (CNC) Mill Programming II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of MAC 150. Includes review of Computer Numerical Control (CNC), mill programming, diagnosis and correction of programming errors, advanced programming techniques use in production and prototype machining, introduction to lathe programming, and introduction to sub-programming.

Prerequisite(s): MAC 150.

Information: Prerequisite maybe waived with industry experience. See a machine tool instructor for prerequisite information.

Offered: Fall, Spring.

**MAC 160 Computer Numerical Control (CNC) Lathe Programming**

4 credit hours/ 6 periods (2 lec., 4 lab)

Operations and procedures for Computer Numerical Control (CNC) Lathe. Includes review of CNC concepts and programming, diagnosis and correction of programming errors, advanced programming for CNC Lathes, and introduction to Computer Aided Manufacturing (CAM) programs.

Prerequisite(s): GTM 105 and MAC 150.

Information: Prerequisite maybe waived with industry experience. See a machine tool instructor for prerequisite information.

Offered: Summer.

**MAC 199 Introduction to Co-op: Machine Tool Technology**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education for first-year students (instruction which provides for success in securing and retaining job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience.

Corequisite(s): MAC 199WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**MAC 199WK Co-op Work: Machine Tool Technology**

1-8 credit hours/ 5-40 periods (5-40 lab)

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

Corequisite(s): MAC 199

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

**MAC 245 Wire Electrical Discharge Machining and Programming I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Operations and procedures for EDM machining system. Includes wire EDM overview, EDM operating processes, EDM machine functions, EDM manual part programming, and EDM machining operations.

Prerequisite(s): MAC 140.

Offered: Spring.

**MAC 257 Comp Aided Machining I**

4 credit hours/ 6 periods (2 lec., 4 lab)

Computer Aided Machining (CAM) I Programming automated machine tools using Computer Aided Manufacturing (Mastercam) software. Includes review of Computer Numerical Control (CNC) and Computer Aided Drafting (CAD), introduction to a CAM environment, creating geometry, operating manager, and code generation.

Prerequisite(s): MAC 155.

Information: Prerequisite maybe waived with industry experience. See a machine tool instructor for prerequisite information.

Offered: Fall, Spring.

**MAC 258 Computer Aided Machining (CAM) II**

4 credit hours/ 6 periods (2 lec., 4 lab)

Continuation of MAC 257. Includes profile surface, 3D surfaces, editing surfaces and preparing geometry for wire part.

Prerequisite(s): MAC 257.

Offered: Spring.

**MAC 259 Computer Aided Machining (CAM) III: Solid Modeling**

4 credit hours/ 7 periods (1 lec., 6 lab)

Continuation of CAD 258. Includes profile surfaces of tool path, solid model features in three-dimension (3-D), and editing solid model surfaces.

Prerequisite(s): MAC 258.

Offered: Summer.

**MAC 275 Applied Metallurgy**

4 credit hours/ 8 periods (2 lec., 6 lab)

Application of metallurgical concepts, procedures, and testing. Includes materials, alloy classification systems, industrial and manufacturing concepts, properties and testing, and industrial and manufacturing processes and applications.

Offered: Fall.

**MAC 296 Machine Tool Independent Projects**

1-4 credit hours/ 3-12 periods (3-12 lab)

Self-directed laboratory projects. Includes establishing objectives, procedures and a method of evaluation.

Information: May be taken sixteen times for a maximum of sixteen credit hours.

Consent of instructor must be obtained before enrolling in this course.

Offered: Fall, Spring.

**MAGNETIC RESONANCE IMAGING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MRI 210 Introduction to Magnetic Resonance Imaging**

1 credit hour/ 1 period (1 lec.)

Overview of magnetic resonance imaging, program policies and student responsibilities. Includes fundamental principles of MRI, equipment and terminology, the role of the technologist in maintaining patient safety and comfort, and personal safety of coworkers. Also includes MRI contrast agents and venipuncture, and a brief introduction to imaging parameters and the clinical applications of MRI.

Corequisite(s): MRI 212, MRI 214, MRI 216LC

Information: Completion of Radiologic Technology program and consent of instructor required before enrolling in this course.

Offered: Fall.

**MRI 212 Physical Principles of Magnetic Resonance Imaging**

1 credit hour/ 1 period (1 lec.)

Comprehensive overview of magnetic resonance imaging. Includes instrumentation, magnetism, nuclear magnetic resonance signal production, tissue characteristics, spatial localization, pulse sequencing, and imaging parameters and options. Also includes special applications, safety, and quality assurance.

Corequisite(s): MRI 210, MRI 214, MRI 216LC

Offered: Fall.

**MRI 214 Sectional Anatomy Human Body**

1 credit hour/ 1 period (1 lec.)

Three dimensional anatomy presented in transverse, sagittal and coronal planes of specified regions of the human body as viewed from magnetic resonance imagery. Includes structure identification of the bones, muscles, vascular system, organs and soft tissue components.

Corequisite(s): MRI 210, MRI 212, MRI 216LC

Offered: Fall.

**MRI 216LC MRI Clinical Education I**

4 credit hours/ 16 periods (16 lab)

Application of general magnetic resonance imaging (MRI) procedures in a clinical education center under supervision of an American Registry of Radiologic Technologies (ARRT) registered MRI technologist. Includes MRI procedures, safe utilization of the MRI environment, patient care, clerical responsibilities, human relations skills with patients and staff, image processing and handling, and MR image evaluation.

Corequisite(s): MRI 210, MRI 212, MRI 214

Offered: Fall.

**MRI 220 Imaging Procedures**

1 credit hour/ 1 period (1 lec.)

Imaging techniques related to the central nervous system, neck, thorax, musculoskeletal system, and abdominopelvic regions. Includes specific clinical applications, available coils and their use, scan sequence considerations, specific protocol choices, and positioning criteria. Also includes anatomical structures, the plane best demonstrating anatomy, and signal characteristics of normal and abnormal structures.

Prerequisite(s): MRI 216.

Corequisite(s): MRI 222, MRI 224, MRI 226LC

Offered: Spring.

**MRI 222 MRI Pathology Detection**

1 credit hour/ 1 period (1 lec.)

Common pathologies identified by magnetic resonance imaging and their appearance with various imaging protocols. Includes all commonly imaged body systems and areas. Also includes case studies and images of pathologies.

Prerequisite(s): MRI 216.

Corequisite(s): MRI 220, MRI 224, MRI 226LC

Offered: Spring.



**MRI 224 ARRT Exam Preparation and MRI Physics Review**

1 credit hour/ 1 period (1 lec.)

Review of knowledge and skills needed to perform the tasks typically required of technologists practicing in the clinical field of magnetic resonance imaging. Includes special emphasis on elements required to pass the American Registry of Radiologic Technologists examination, including patient care and safety, imaging procedures, data acquisition, and physical principles of image formation.

Prerequisite(s): MRI 216.Corequisite(s): MRI 220, MRI 222, MRI 226LC

Offered: Spring.

**MRI 226LC MRI Clinical Education II**

4 credit hours/ 16 periods (16 lab)

Continuation of MRI 216LC. Application of general magnetic resonance imaging procedures in a clinical education center under the supervision of an American Registry of Radiologic Technologist (ARRT) registered MRI technologist. Includes further development of MRI procedures, safe utilization of the MRI environment, patient care, clerical responsibilities, human relations skills with patients and staff, image processing and handling, and MR image evaluation.

Prerequisite(s): MRI 216LC.Corequisite(s): MRI 220, MRI 222, MRI 224

Offered: Spring.

**MAINTENANCE TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MNT 101 Custodial Procedures**

3 credit hours/ 3 periods (3 lec.)

Cleaning techniques and procedures. Includes chemicals and chemical usage, cleaning equipment, floor machines, floor pads and brushes, wet and dry mopping, spray buffing and floor polishing, scrubbing, stripping, protective floor coverings, safety, floor care, special use floors, metal cleaning and polishing, restroom sanitation and stain removal.

Offered: Fall.

**MNT 107 Southwest Industrial Landscape Maintenance**

2 credit hours/ 3 periods (1 lec., 2 lab)

Principles and techniques of operating and maintaining a Southwest desert landscape system in an industrial setting. Includes tools and equipment, pruning principles and techniques, disease and insect control, fertilizer selection and use, and herbicide selection and use. Also includes turf management, maintenance and troubleshooting irrigation systems, and seasonal maintenance planning.

Offered: Fall.

**MNT 108 Water Treatment Systems**

1.5 credit hours/ 2 periods (1 lec., 1 lab)

Water treatment for industrial purposes. Includes water basics, automatic feed applications, water analysis and testing, cooling water systems, meters associated with water treatment, boiler treatment, industrial water and wastewater applications.

Prerequisite(s): MAT 086.

Offered: Spring.

**MNT 110 Industrial Air Compressors**

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Principles and procedures of industrial air compressors. Includes pneumatic principles, reciprocating and rotary compressors, determining air compressor requirements, air treatment, pressure controlling and venting, system maintenance program, and troubleshooting.

Prerequisite(s): MAT 086

Offered: May not be offered this year, check class schedule.

**MNT 112 Industrial Pumps**

3 credit hours/ 4 periods (2 lec., 2 lab)

Operation, maintenance, and installation of industrial pumping systems. Includes pumping concepts, application and selection of pumps, introduction to metering and vacuum pump systems, packing and seals, and pump maintenance, repair, and installation procedures.

Prerequisite(s): MAT 086

Offered: Fall.

**MNT 116 Industrial Boilers**

4 credit hours/ 6 periods (3 lec., 3 lab)

Operation and maintenance of industrial heating systems. Includes safety, types of boilers and fuels, pipe specifications, fuel regulators, ignition systems, pump start up procedures, troubleshooting, blowdown, water treatment, preventative maintenance, valves, periodic inspection, and installation.

Prerequisite(s): MAT 086

Offered: Spring.

**MNT 140 Tools and Equipment for Industrial Painting**

3 credit hours/ 4 periods (2 lec., 2 lab)

Classification and application of tools and equipment for industrial painting. Includes types of tools and equipment of the trade, care and use of the equipment, and sign production.

Offered: May not be offered this year, check class schedule.

**MNT 141 Industrial Painting Applications I**

3 credit hours/ 4 periods (2 lec., 2 lab)

Theory and application of industrial painting. Includes color schemes, types, properties and application, composition, elements, matching colors, mixing, hazardous materials and conditions, safety associated with the painting trade, and application techniques.

Prerequisite(s): MNT 140

Offered: May not be offered this year, check class schedule.

**MNT 142 Industrial Painting Applications II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of MNT 141. Includes a review of tools, equipment, types of paint, application, composition, and mixing of paint, types of surfaces to paint, stripping.

Prerequisite(s): MNT 141.

Offered: May not be offered this year, check class schedule.

**MNT 150 Rigging and Load Lifting**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and procedures of rigging and load lifting. Includes types of ropes and slings, chains, hoists, overhead and jib cranes, scaffolds and ladders, and transporting, leveling, anchoring, and setting up of equipment.

Offered: Spring.

**MNT 152 Industrial Bearings**

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Installation and troubleshooting techniques of industrial bearings. Includes journal, ball and roller, and specialized bearings, lubrication and seals, installation and removal techniques and safety.

Prerequisite(s): MNT 104

Offered: Spring.

**MNT 155 Industrial Mechanical Drives**

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Principles and procedures associated with industrial mechanical drives. Includes type, construction, installation and safety of chain, gear, and variable speed drives.

Prerequisite(s): MNT 152.

Offered: Fall.

**MNT 160 Industrial Diesel Engine Maintenance and Repair**

3 credit hours/ 5 periods (2 lec., 3 lab)

Troubleshooting and service of industrial diesel engines. Includes system operation, carburetion, specifications and torque, troubleshooting, lubrication and maintenance, testing and adjusting, and manufacturer differences.

Prerequisite(s): AUT 124, 125, 128, and 129.

Offered: May not be offered this year, check class schedule.

**MNT 170 Industrial Plumbing and Piping Systems I**

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Principles and practices of an industrial plumbing and piping system. Includes an introduction to plumbing and piping systems, math and commercial blueprint reading, types, irrigation, installation, and servicing of valves, types of fittings, related equipment, and safety.

Prerequisite(s): BCT 120

Offered: May not be offered this year, check class schedule.

**MNT 171 Industrial Plumbing and Piping Systems II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of MNT 170. Includes fixtures, water heaters, faucets, traps and interceptors, joints and connections, meters, water pressure booster and supply systems, shock arrestors, and techniques for thawing frozen pipes.

Prerequisite(s): MNT 170.

Offered: May not be offered this year, check class schedule.

**MNT 172 Industrial Plumbing and Piping Systems III**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of MNT 171. Includes features and operation of piping systems, types and sizes of vents, types, operation, and application of pumps, fire protection, methods of disinfection, and operation and repair of deionized water units.

Prerequisite(s): MNT 171.

Offered: May not be offered this year, check class schedule.

**MNT 201 Direct Digital Controllers**

3 credit hours/ 4 periods (2 lec., 2 lab)

Electronic controller troubleshooting and maintenance. Includes hardware, computer program loading and maintenance, energy management, control theory, control loops, stand alone controllers, variable air volume box, and interfacing.

Prerequisite(s): BCT 132

Offered: May not be offered this year, check class schedule.

**MNT 210 Air Logic Control Systems**

2 credit hours/ 3 periods (1 lec., 2 lab)

Principles and application of an air logic control system. Includes an introduction to pneumatic control system diagrams, elements, and accessories, and pneumatic logic circuit board layout and troubleshooting.

Offered: Spring.

**MNT 230 Electrical Storage Batteries**

2.5 credit hours/ 3 periods (2 lec., 1 lab)

Principles and procedures associated with electrical storage batteries. Includes safety precautions and equipment, battery operation, terminology, cell construction, types of storage batteries, charging techniques, and effects of temperatures on lead-acid batteries.

Offered: Fall.

**MNT 231 Industrial Fire Alarm Systems**

4 credit hours/ 6 periods (3 lec., 3 lab)

Principles and procedures associated with industrial fire alarm systems. Includes initiating, signaling, remote devices, types of alarms, fan shutdown controls, area annunciator panels, battery power supplies, field processing hardware.

Offered: Spring.

**MNT 238 Electrical Transformers I**

3 credit hours/ 4 periods (2 lec., 2 lab)

Theory and application of electrical transformers. Includes construction of a transformer, definition of terms, calculating efficiency of a transformer, polarity markings, paralleling transformers, voltage and frequency, structure, advantages and disadvantages of the three-phase transformer, and transformer banks.

Offered: Spring.

**MNT 242 High Voltage Electrical Switchgear**

3 credit hours/ 4 periods (2 lec., 2 lab)

Theory and application of high voltage electrical switchgear. Includes medium or high voltage switchgear, secondary and primary unit substation power centers, rectifier unit stations, panelboards, busbar spacing, motor control centers, associated equipment and procedures, and safety.

Prerequisite(s): BCT 284

Offered: Spring.

**MNT 244 Conduit Systems and Hardware**

3 credit hours/ 4 periods (2 lec., 2 lab)

Theory and application of conduit systems and hardware. Includes electrical metallic tubing, rigid, polyvinyl chloride (PVC) and flexible conduit, conduit supports, construction wiring techniques, hardware, code requirements, and grounding methods.

Prerequisite(s): MAT 086.

Offered: May not be offered this year, check class schedule.

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**MANAGEMENT**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MGT 110 Human Relations in Business and Industry**

3 credit hours/ 3 periods (3 lec.)

Examination of the most basic forms of human relations as it relates to business and industry. Includes the roles of the employees, supervisors, and management, management concepts and functions, communication, managing change and stress, human motivation, building relationships, and supervising groups. Also includes leadership and management styles, selection, orientation, training, and appraisal, discipline, complaints, grievances, and working with the union, and security, safety, and health at work.

Offered: Fall, Spring, Summer.

**MGT 122 Supervision**

3 credit hours/ 3 periods (3 lec.)

Theories and concepts of supervision. Includes the role of the supervisor, management concepts and functions, communication, managing change and stress, human motivation, building relationships, supervision of groups, leadership and management styles, selection, orientation, training, appraisal, and discipline. Also includes complaints, grievances, working with the union, security, safety, and health at work.

Information: This course consists of study and application. The student will first review all of the major concepts in supervision. The student will then utilize all of the major concepts presented to examine and evaluate a series of case studies. At the end of the course, a final and cumulative case study will be evaluated. Recommendations: It is recommended that students complete MGT 110 before enrolling in this course.

Offered: Fall, Spring, Summer.

**MGT 124 Small Business Management**

3 credit hours/ 3 periods (3 lec.)

Analysis of the practical problems of organizing, managing and starting a small business. Includes introduction and overview, selecting employees, forms of ownership, managing the business, business plan, pricing, managing cash flow, creating sales forecast, income statements, breakeven analysis, source of funds, international operations, contract, risk, and international opportunities.

Offered: Fall, Spring.

**MGT 130 Improving Customer Service Quality**

3 credit hours/ 3 periods (3 lec.)

Exploration of customer service quality in a variety of product and service arenas. Includes customer/supplier interactions, quality indicators, costs of service quality, guidelines for quality service improvement, pitfalls or danger signs, service quality benchmarking process, variation, introductory tools for service quality improvement, and quality training.

Recommendation: Completion of MAT 092 before enrolling in this course.

Offered: Spring.

**MGT 190 Internship in Management**

1.2-9 credit hours/ 2-41 periods (1 lec., 1-40 lab)

Supervised internship in a management workplace. Includes experiences supervised by a professional in the field.

Recommendation: Consent of instructor before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**MGT 190A Internship in Management - Module A**

1 credit hour/ 1 period (1 lec.)

Survey of the management workplace. Includes up-to-date employment information, preparing for work, and job-related expectations.

Recommendation: Consent of instructor before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**MGT 190B Internship in Management - Module B**

.2-8 credit hours/ 1-40 periods (1-40 lab)

Experience in the management workplace. Includes assignment in a professional office and supervision by a Pima faculty member and a workplace supervisor.

Recommendation: Consent of instructor before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**MGT 230 Dynamics of Leadership**

3 credit hours/ 3 periods (3 lec.)

Supervised practical training in leadership. Includes history, philosophy, and vision of leadership, aspects of leadership, power of positive vision, goal setting, decision making, life planning, identifying a personal philosophy, team building, delegating, ethics in leadership, servant leadership, initiating change, managing conflict, and designing and completing leadership projects.

Information: Same as STU 230.

Offered: Fall.

**MGT 230A Dynamics of Leadership: Philosophy and Vision**

.5 credit hours/ .5 periods (.5 lec.)

Introduction to leadership. Includes history of leadership, aspects of leadership, and power of positive vision.

Information: MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230. Same as STU 230A.

Offered: May not be offered this year, check class schedule.

**MGT 230B Decision Making and Goal Setting**

.5 credit hours/ .5 periods (.5 lec.)

Achieving positive ends. Includes goal setting, decision making, life planning, and identifying a personal philosophy.

Information: MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230. Same as STU 230B.

Offered: May not be offered this year, check class schedule.

**MGT 230C Team Building and Empowering**

.5 credit hours/ .5 periods (.5 lec.)

Positive group dynamics. Includes team building and delegating.

Information: MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230. Same as STU 230C.

Offered: May not be offered this year, check class schedule.

**MGT 230D Ethics in Leadership**

.5 credit hours/ .5 periods (.5 lec.)

Development of ethical behavior. Includes ethics in leadership and servant leadership.

Information: MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230. Same as STU 230D.

Offered: May not be offered this year, check class schedule.

**MGT 230E Conflict and Change**

.5 credit hours/ .5 periods (.5 lec.)

Elements of the change process. Includes initiating change, managing conflict. Information: MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230. Same as STU 230E.

Offered: May not be offered this year, check class schedule.

**MGT 230F Developing Viable Leadership Project**

.5 credit hours/ .5 periods (.5 lec.)

Effective leadership skills. Includes designing and completing leadership projects.

Information: MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230. Same as STU 230F.

Offered: May not be offered this year, check class schedule.

**MGT 270 Computer Applications for Managers**

3 credit hours/ 3 periods (3 lec.)

Development of management skills in computer applications for business. Includes state of computing technology, electronic commerce and the economy, international issues, work and the virtual workplace, project management, and presentations

Recommendation: Completion of CSA 101 or proficiency with Microsoft Office software before enrolling in this course.

Offered: Fall.

**MGT 276 Human Resources**

3 credit hours/ 3 periods (3 lec.)

Practical aspects of personnel management and support. Includes roles and concepts, acquiring human resources, administering the personnel program, developing employee potential, maintaining the workforce, and future outlook for personnel management.

Recommendation: Completion of BUS 100 before enrolling in this course.

Offered: Fall.

**MGT 280 Business Organization and Management**

3 credit hours/ 3 periods (3 lec.)

Overview of the functions performed and issues faced by managers in business. Includes managers and management, the managerial environment, planning and decision support systems, project management, managerial control, and leadership. Also includes motivation and performance, control, and creating and sustaining high performance teams.

Recommendation: Completion of BUS 100 and any other MGT course before enrolling in this course.

Offered: Fall, Spring.

**MGT 283 Organizational Planning for the New Economy**

3 credit hours/ 3 periods (3 lec.)

Techniques of planning in light of contemporary economic factors. Includes issues of the new economy, strategic planning and thinking, planning models, a case studies in planning for a government agency, business, or non-profit organization.

Offered: Fall.

**MGT 284 Health Care Management**

3 credit hours/ 3 periods (3 lec.)

An overview of health care management to prepare supervisors and middle managers. Includes health care regulations, finance and related business issues, communication among the health care team members, supervision of staff, and planning and evaluating patient care management systems.

Recommendation: Completion of HCA 154 before enrolling in this course for students with no experience in the Health Care field.

Offered: Spring.

**MGT 285 Leading a Non-Profit Organization**

3 credit hours/ 3 periods (3 lec.)

Overview of the issues and tasks related to leading a non-profit organization. Includes types of non-profit organizations establishing, planning, and evaluating non-profit organizations, functions of board of directors, and managing volunteer workers from the community.

Offered: spring.

**MGT 286 Funding and Finance in a Non-Profit Organization**

3 credit hours/ 3 periods (3 lec.)

Financial issues related to leadership and management of a non-profit organization. Includes fund raising and other revenue sources, financial management, accounting practices, and tax codes regarding potential donors.

Offered: May not be offered this year, check class schedule.

**MGT 287 Strategic Community Alliances of Non-Profit Organizations**

3 credit hours/ 3 periods (3 lec.)

Survey of the types of relationships non-profit organizations have with their communities. Includes community profiles, social change in multiple communities, marketing non-profit organizations, effective communication with constituencies, and collaborating with other organizations.

Offered: May not be offered this year, check class schedule.

**MGT 289 Capstone Project in Leadership**

2 credit hours/ 2 periods (2 lec.)

Developing and reporting on a project to integrate leadership concepts and actions. Includes a review of leadership concepts, proposal development, project implementation, and reporting on the activities and outcomes of a leadership project.

Prerequisite(s): MGT/STU 230

Offered: Spring.

**MARKETING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MKT 111 Principles of Marketing**

3 credit hours/ 3 periods (3 lec.)

Introduction to marketing principles and strategies. Includes developing a preliminary marketing plan, product strategy, pricing strategy, distribution of products/services, promotional strategies, relating the classification of consumer goods with the elements of the marketing mix, and the global marketplace.

Offered: Fall, Spring, Summer.

**MKT 113 Salesmanship**

3 credit hours/ 3 periods (3 lec.)

Basic principles and techniques of selling and their practical application. Includes selling as a profession, preparation for relationship selling, the selling process, and planning and managing a sales territory.

Offered: Fall, Spring.

**MKT 125 Advertising**

3 credit hours/ 3 periods (3 lec.)

Advertising principles and concepts as applied in a business setting. Includes advertising perspectives, developing marketing and advertising strategies, creating advertisements and commercials, and advertising media mix.

Offered: Fall.

**MKT 139 Retailing**

3 credit hours/ 3 periods (3 lec.)

Business activities of selling goods and services to final customers. Includes overview of the industry of retailing, environmental framework, consumer demographics and behavior, retail outlet characteristics, the retailing mix, retail information and control systems, the changing nature of retailing, and retailing careers.

Offered: May not be offered this year, check class schedule.

**MKT 140 Principles of Apparel Merchandising**

3 credit hours/ 3 periods (3 lec.)

A comprehensive overview of enterprises involved in clothing and accessories. Includes design, production, and distribution of clothing, fashion consumer: identification and analysis, methods of research for retailing, ethical issues in retailing, careers in apparel merchandising, and case studies.

Offered: Fall.

**MKT 150 Physical Distribution Management**

3 credit hours/ 3 periods (3 lec.)

Overview of physical distribution management to achieve the most effective flow of products. Includes the role of logistics in the economy and organization, developing customer service standards, logistics information systems, inventory, managing the flow of materials, transportation, warehousing, and purchasing. Also includes global logistics, effective logistics, international distribution strategies, supply chain management, and implementation of logistics strategy.

Information: Same as PIM 150.

Offered: May not be offered this year, check class schedule.

**MKT 160 Marketing for Nonprofit Organizations**

3 credit hours/ 3 periods (3 lec.)

Application of marketing principles and practices to nonprofit organizations. Includes marketing terminology and strategic planning concepts. Also includes student design of an integrated marketing plan for a nonprofit organization.

Offered: May not be offered this year, check class schedule.

**MKT 196 Independent Study in Marketing and Business**

.5-3 credit hours/ 1.5-9 periods (1.5-9 lab)

Student independently continue their studies in Marketing and Business under the supervision of a faculty member.

Information: Consent of instructor is required before enrolling in this course. May be taken three times for a maximum of nine credit hours.

Offered: May not be offered this year, check class schedule.



**MKT 240 Apparel Merchandising Techniques**

3 credit hours/ 3 periods (3 lec.)

A survey of analytical skills for marketing clothing successfully. Includes evaluation of merchandise in clothing sales, planning for a product line, impact of the global supply chain in apparel, visual display of clothing, and practicum experience in a retail setting.

Offered: Spring.

**MATHEMATICS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MAT 082 Basic Mathematics**

3 credit hours/ 3 periods (3 lec.)

Fundamentals and applications of arithmetic. Includes operations on whole numbers, fractions, decimal numbers, ratio and proportion, percent, and measurement.

Information: MAT 082A, 082B, and 082C together constitute MAT 082.

Offered: Fall, Spring, Summer.

**MAT 082A Basic Mathematics: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of MAT 082.

Offered: Fall, Spring, Summer.

**MAT 082B Basics Mathematics: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of MAT 082.

*Prerequisite(s):* Within the last three years: MAT 082A with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 082C Basic Mathematics: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of MAT 082.

*Prerequisite(s):* Within the last three years: MAT 082B with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 086 Prealgebra**

3 credit hours/ 3 periods (3 lec.)

Transition from arithmetic to algebra. Includes signed numbers, commutative, associative, and distributive laws, order of operations, algebraic expressions, polynomials, fractions, and linear equations. Also includes percents, ratio and proportion, graphing, perimeter, area, volume, and optional topics.

*Prerequisite(s):* Within the last three years: MAT 082 with a C or better or required score on the Mathematics assessment test.

Information: MAT 086A, 086B, and 086C together constitute MAT 086. Access to a scanner required for Math class taken online.

Offered: Fall, Spring, Summer.

**MAT 086A Prealgebra: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of MAT 086.

*Prerequisite(s):* Within the last three years: MAT 082 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 086B Prealgebra: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of MAT 086.

*Prerequisite(s):* Within the last three years: MAT 086A with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 086C Prealgebra: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of MAT 086.

*Prerequisite(s):* Within the last three years: MAT 086B with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 092 Elementary Algebra**

3 credit hours/ 3 periods (3 lec.)

Introduction to basic algebra. Includes translating written statements into algebraic expressions, linear equations, linear inequalities, graphing, integer exponents, and polynomials. Also includes factoring, simple rational expressions, square roots, quadratic equations, and optional topics.

*Prerequisite(s):* Within the last three years: MAT 086 with a C or better or satisfactory score on the Mathematics assessment test.

Information: Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 092A Elementary Algebra: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of MAT 092.

*Prerequisite(s):* Within the last three years: MAT 082 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 092B Elementary Algebra: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of MAT 092.

*Prerequisite(s):* Within the last three years: MAT 092A with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 092C Elementary Algebra: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of MAT 092.

*Prerequisite(s):* Within the last three years: MAT 092B with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 093 Elementary Algebra Supplemental**

1 credit hour/ 1 period (1 lec.)

Supplementary to and in conjunction with MAT 092, this course will emphasize problem solving, with further study of graphing, equations, applications, and other commonly mis- understood topics.

*Prerequisite(s):* Within the last three years: MAT 086 with a C or better or required score on the Mathematics assessment test. *Corequisite(s):* MAT 092

Offered: May not be offered this year, check class schedule.

**MAT 106 Elementary Data Analysis and Statistical Inference**

1 credit hour/ 1 period (1 lec.)

Introduction to statistics. Includes the collection and presentation of data and statistical measures.

*Prerequisite(s):* Within the last three years: MAT 086 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 108 Practical Geometry and Trigonometry**

2 credit hours/ 2 periods (2 lec.)

Fundamentals of geometry and trigonometry with applications. Includes basic geometric properties, properties of triangles, Pythagorean Theorem and special triangles, polygons, circles, volumes, radian measure, trigonometric functions, and oblique triangles.

*Prerequisite(s):* Within the last three years: MAT 086 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring.

**MAT 108A Practical Geometry and Trigonometry: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-half of MAT 108.

*Prerequisite(s):* Within the last three years: MAT 082 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 108B Practical Geometry and Trigonometry: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-half of MAT 108.

*Prerequisite(s):* Within the last three years: MAT 108A with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 109A Introduction to Combinatorics and Probability**

1 credit hour/ 1 period (1 lec.)

Introduction to sets in combinatorics. Includes factorials, permutations, and combinations and probability.

Offered: May not be offered this year, check class schedule.

**MAT 109B Topics in Discrete Mathematics**

1 credit hour/ 1 period (1 lec.)

Selected topics in college level Mathematics. Includes number theory, graph theory, matrices, and sequences.

Offered: May not be offered this year, check class schedule.

**MAT 122 Intermediate Algebra**

3 credit hours/ 3 periods (3 lec.)

Basic algebraic functions. Includes lines in the plane, systems of linear equations, inequalities, polynomials, rational expressions and equations, radical expressions and equations. Also includes quadratic equations, literal equations, exponents, and logarithms, functions, and optional topics.

*Prerequisite(s):* Within the last three years: C or better in MAT 092 or satisfactory score on the mathematics assessment exam.

Information: MAT 122A, 122B, and 122C together constitute MAT 122. Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.



**MAT 122A Intermediate Algebra: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of MAT 122.

*Prerequisite(s):* Within the last three years: MAT 092 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 122B Intermediate Algebra: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of MAT 122.

*Prerequisite(s):* Within the last three years: MAT 122A with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 122C Intermediate Algebra: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of MAT 122.

*Prerequisite(s):* Within the last three years: MAT 122B with a C or better or concurrent enrollment.

Offered: Fall, Spring, Summer.

**MAT 142 Topics in College Mathematics**

3 credit hours/ 3 periods (3 lec.)

Survey of mathematical topics and applications. Includes application of mathematics to the social services, management science, growth, and probability and statistics.

*Prerequisite(s):* Within the last three years: MAT 122 with a C or better or required score on the Mathematics assessment test.

Information: Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 144 College Algebra with Data Analysis**

4 credit hours/ 4 periods (4 lec.)

College Algebra with an emphasis on data analysis. Includes functions, systems of equations, exponents and logarithms, power functions, polynomial functions, rates of change, descriptive statistics, regression, summation notation, spreadsheet software, and reports and projects.

*Prerequisite(s):* Within the last three years: MAT 122 with a C or better or required score on the Mathematics assessment test.

Information: Spreadsheet skills or concurrent enrollment in CSA 210 will be helpful.

Offered: Fall, Spring, Summer.

**MAT 146 Mathematics for Elementary Teachers I**

3 credit hours/ 3 periods (3 lec.)

An overview of mathematical concepts, principles and applications specifically for elementary teachers. Includes real number properties and patterns, arithmetic operations and algorithms in subsets of real numbers, alternative numbers systems, set theory, and algebraic reasoning and problem solving. Also includes the technology to teach mathematics.

*Prerequisite(s):* Within the last three years: MAT 142 or higher with a C or better.

Information: Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 147 Mathematics for Elementary Teachers II**

3 credit hours/ 3 periods (3 lec.)

Continuation of MAT 146. Includes measurement, basic geometry, probability, and statistics. Also includes the technology to teach mathematics.

*Prerequisite(s):* Within the last three years: MAT 146 with a C or better.

Information: Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 151 College Algebra**

4 credit hours/ 4 periods (4 lec.)

Introduction to college-level algebra. Includes functions, polynomial and rational functions, exponential and logarithmic functions, linear 2 x 2 and higher systems, graphing, sequences and series, and calculator use.

*Prerequisite(s):* Within the last three years: MAT 122 with a C or better or required score on the Mathematics assessment test.

Information: Students taking two or three of the following courses in any combination will receive a maximum of 7 credits toward graduation: MAT 151, 182 and 187. A graphing calculator is required. See your instructor for details. Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 151A College Algebra: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-fourth of MAT 151.

*Prerequisite(s):* Within the last three years: MAT 122 with a C or better or required score on the Mathematics assessment test.

Information: MAT 151A, 151B, 151C, and 151D together constitute MAT 151. A graphing calculator is required. See your instructor for details.

Offered: Fall, Spring, Summer.

**MAT 151B College Algebra: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-fourth of MAT 151.

*Prerequisite(s):* Within the last three years: MAT 151A with a C or better or concurrent enrollment.

Information: MAT 151A, 151B, 151C, and 151D together constitute MAT 151. A graphing calculator is required. See your instructor for details.

Offered: Fall, Spring, Summer.

**MAT 151C College Algebra: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-fourth of MAT 151.

*Prerequisite(s):* Within the last three years: MAT 151A with a C or better or concurrent enrollment.

Information: MAT 151A, 151B, 151C, and 151D together constitute MAT 151. A graphing calculator is required. See your instructor for details.

Offered: Fall, Spring, Summer.

**MAT 151D College Algebra: Module D**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the fourth one-fourth of MAT 151.

*Prerequisite(s):* Within the last three years: MAT 151C with a C or better or concurrent enrollment.

Information: MAT 151A, 151B, 151C, and 151D constitute MAT 151. A graphing calculator is required. See your instructor for details.

Offered: Fall, Spring, Summer.

**MAT 167 Introductory Statistics**

3 credit hours/ 3 periods (3 lec.)

Introduction to statistics. Includes sampling, data display, measures of central tendency, variability, and position; random variables, probability, probability distributions; confidence intervals, hypothesis testing, and regression.

*Prerequisite(s):* Within the last three years: MAT 144 or 151 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 172 Finite Mathematics**

3 credit hours/ 3 periods (3 lec.)

Mathematics for students majoring in business. Includes set theory, partitions, permutations, combinations, probability, Bernoulli trials, Markov chains and the simplex method of linear programming.

*Prerequisite(s):* Within the last three years: C or better in MAT 144 or 151 or required score on the mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 173 Mathematics for Business I**

3 credit hours/ 3 periods (3 lec.)

Introduction to business finite mathematics. Includes basic probability, summation, conditional probability and independence, Bayes' Theorem, compound interest, random variables, random sampling, and computer skills.

*Prerequisite(s):* Within the last three years: MAT 144 or 151 with a C or better or required score on the Mathematics assessment test, and CSA 210.

Information: MOS Excel Specialist certification may be substituted for CSA 210.

Offered: Fall, Spring, Summer.

**MAT 174 Mathematics for Business II**

3 credit hours/ 3 periods (3 lec.)

Continuation of MAT 173. Includes distributions, normal distributions, basic statistics, integration, common business functions, differentiation, computer skills.

*Prerequisite(s):* Within the last three years: MAT 173 with a C or better.

Offered: Fall, Spring, Summer.

**MAT 182 Trigonometry**

3 credit hours/ 3 periods (3 lec.)

Introduction to trigonometric functions. Includes graphs, identities, angle measure, vectors, polar coordinates, and conic sections.

*Prerequisite(s):* Within the last three years: MAT 151 with a C or better or required score on the Mathematics assessment test.

Information: Students taking two or three of the following courses in any combination will receive a maximum of 7 credits toward graduation: MAT 151, 182 and 187. MAT 182A, 182B, and 182C together constitute MAT 182. Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 182A Trigonometry: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of MAT 182.

*Prerequisite(s):* Within the last three years: MAT 151 with a C or better or required score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

**MAT 182B Trigonometry: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of MAT 182.

*Prerequisite(s): Within the last three years: MAT 182A with a C or better or concurrent enrollment.*

Offered: Fall, Spring, Summer.

**MAT 182C Trigonometry: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one third of MAT 182.

*Prerequisite(s): Within the last three years: MAT 182B with a C or better or concurrent enrollment.*

Offered: Fall, Spring, Summer.

**MAT 187 Precalculus**

5 credit hours/ 5 periods (5 lec.)

College-level algebra and trigonometry. Includes equations, algebraic functions, inequalities, systems, conic sections, sequences and series, trigonometric functions, polar form, and partial fractions. Also includes intensive preparation for analytic geometry and calculus.

*Prerequisite(s): Within the last three years: MAT 122 with a C or better or required score on the Mathematics assessment test.*

Information: Students taking two or three of the following courses in any combination will receive a maximum of 7 credits toward graduation: MAT 151, 182 and 187.

Offered: Fall, Spring, Summer.

**MAT 212 Topics in Calculus**

3 credit hours/ 3 periods (3 lec.)

Calculus for students majoring in business. Includes limits, continuity, differentiation and integration of algebraic functions.

*Prerequisite(s): Within the last three years: MAT 144 or 151 with a C or better or required score on the Mathematics assessment test.*

Offered: Fall, Spring, Summer.

**MAT 220 Calculus I**

5 credit hours/ 5 periods (5 lec.)

Introduction to analytical geometry and calculus. Includes limits and continuity, derivatives, applications of the derivative, and integration.

*Prerequisite(s): Within the last three years: MAT 151 and 182 or MAT 187 with a C or better or required score on the Mathematics assessment exam.*

Information: Access to a scanner required for Math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 227 Discrete Mathematics in Computer Science**

4 credit hours/ 4 periods (4 lec.)

Mathematical concepts applicable to computer science. Includes logic, set theory, counting techniques, proof techniques, relations and functions, binary relations, big-oh notation, mathematical induction, and recursion.

*Prerequisite(s): Within the last three years: MAT 220 or higher with a C or better.**Recommendation:* Completion of CIS 129 or programming experience is recommended prior to enrolling in this course. MAT 220 or higher.

Offered: May not be offered this year, check class schedule.

**MAT 231 Calculus II**

4 credit hours/ 4 periods (4 lec.)

Continuation of MAT 220. Includes differentiation and integration of logarithmic and exponential functions, applications of integration and infinite series.

*Prerequisite(s): Within the last three years: MAT 220 with a C or better.*

Offered: Fall, Spring, Summer.

**MAT 241 Calculus III**

4 credit hours/ 4 periods (4 lec.)

Continuation of MAT 231. Includes conic sections, polar coordinates, solid geometry, two and three dimensional vectors, moments, partial derivatives and multiple integration.

*Prerequisite(s): Within the last three years: MAT 231 with a C or better.*

Offered: Fall, Spring, Summer.

**MAT 252 Introduction to Linear Algebra**

3 credit hours/ 3 periods (3 lec.)

Introduction to vector spaces and linear transformations. Includes systems of linear equations, vector spaces, inner product spaces, matrices, linear transformations, and technology.

*Prerequisite(s): Within the last three years: MAT 241 or MAT 241 with a C or better.*

Offered: Fall, Spring, Summer.

**MAT 262 Differential Equations**

3 credit hours/ 3 periods (3 lec.)

Introduction to differential equations. Includes first order differential equations, higher order differential equations, systems of differential equations, Laplace transforms, approximating methods, and technology. Also includes applications.

*Prerequisite(s): Within the last three years: MAT 231 with a C or better.*

Offered: Fall, Spring, Summer.

**MAT 295 Independent Research in Mathematics**

1-4 credit hours/ 3-12 periods (3-12 lab)

Experience in mathematical research. Specific content to be determined by student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken three times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**MAT 296 Independent Studies in Mathematics**

1-4 credit hours/ 1-4 periods (1-4 lec.)

Independent studies and projects in mathematics. Content to be determined by conference between student and instructor.

*Prerequisite(s): Required score on the Mathematics assessment test.*

Information: Consent of a sponsoring instructor must be obtained before registering.

Offered: Fall, Spring.

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**MEDICAL LABORATORY TECHNICIAN**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MLT 199 Introduction to Co-op: Medical Laboratory Technician**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Includes laboratory workplace skills, communication skills, time and energy management, managing stress, career information, placing yourself on the job market, principles, theories, and practices in the career field, and problems in the work situation.

*Corequisite(s): MLT 199WK*

Information: Consent of instructor is required before enrolling in this course.

Offered: Spring.

**MLT 199WK Co-op Work: Medical Laboratory Technician**

4.5 credit hours/ 22.5 periods (22.5 lab)

A supervised cooperative work program for students. Teacher-coordinators work with students and their supervisors in a hospital or clinic laboratory. The student develops competency and improved self confidence in the laboratory workplace.

*Corequisite(s): MLT 199*

Information: Consent of instructor is required before enrolling in this course.

Offered: Spring.

**MLT 200 Urinalysis/Body Fluids**

3 credit hours/ 5 periods (2 lec., 3 lab)

Introduction to the fundamental techniques in urinalysis and body fluids. Includes urine collection, physical and chemical examination of urine, microscopic examination of urine, and body fluids.

*Prerequisite(s): BIO 156 or placement exam into BIO 201, BIO 205, CHM 080 or placement exam into CHM 151, and MAT 122.*

Offered: Fall.

**MLT 211 Hematology**

4 credit hours/ 6 periods (3 lec., 3 lab)

The study of human blood cells (red cells, white cells, and platelets), looking at structure, formation and the diseases associated with these cells. Includes types of blood cells, test, normal white cells in peripheral blood, blood cell maturation, normal and abnormal white and red blood cells, disease states, hemoglobins, facets of hemostasis, coagulation mechanism and abnormalities, and the fibrinolytic systems.

*Prerequisite(s): BIO 156 or placement exam into BIO 201, BIO 205, CHM 080 or placement exam into CHM 151, and MAT 122.*

Offered: Spring.

**MLT 221 Clinical Chemistry**

4 credit hours/ 6 periods (3 lec., 3 lab)

Fundamentals of chemistry in a clinical setting. Includes chemical substances, instruments, laboratory procedures, blood and urine chemistry abnormalities, and laboratory instrument computers and information systems.

*Prerequisite(s): BIO 205IN, BIO 156IN or placement into BIO 201IN, and CHM 152.*

Offered: Spring.

**MLT 231 Immunohematology/Immunology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to basic immunology related to methods utilized in the clinical laboratory. Includes blood collection, blood components, immunology and complement, principles of serological testing in immunohematology, genetics, ABO, H, and Rh blood group systems, pretransfusion compatibility testing, other blood group systems, and antiglobulin testing. Also includes identification of unexpected antibodies, neonatal and obstetrical transfusion practice, adverse effects of blood transfusion, positive DAT and immune hemolysis, quality assurance, transplantation.

*Prerequisite(s): MLT 200, 211.*

Offered: Fall.

**MLT 251 Clinical Microbiology**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to the structure, identification, and control of bacteria. Includes categories/classification of bacteria, ecology and spread of bacteria, pathogenesis of bacterial infection, clinical bacteriology methodology, various organisms, clinically significant anaerobic bacteria, and methods in antimicrobial testing.

*Prerequisite(s):* BIO 205, MLT 200, 211.

Information: The emphasis in this course is on bacteria of medical importance with respect to their cultivation, isolation, and pathogenicity. Through laboratory experience, the student develops techniques of specimen collection and processing, culture, staining, biochemical testing, antibiotic susceptibility testing.

Offered: Fall.

**MLT 260 Parasitology**

3 credit hours/ 3 periods (2 lec., 1 lab)

Introduction to the basics of parasite and host relationships and their effects. Includes specimen collection, techniques for stool examination, special techniques, use of other specimens, procedures for detecting blood and tissue parasites, diagnosis of parasitic infections, clinically important parasites, and quality assurance. Also includes introduction to immunology and serological testing for autoimmune and infectious diseases.

*Prerequisite(s):* BIO 202 and 205.

Offered: Fall.

**MLT 299 Introduction to Co-op: Medical Laboratory Technician**

1 credit hour/ 1 period (1 lec.)

Principles of job success. Includes laboratory workplace skills, communication skills, time and energy management, managing stress, career information, placing yourself on the job market, principles, theories, and practices in the career field, and problems in the work situation.

*Corequisite(s):* MLT 299WK

Information: Consent of instructor is required before enrolling in this course.

Offered: Summer.

**MLT 299WK Co-op Work: Medical Laboratory Technician**

4.5 credit hours/ 22.5 periods (22.5 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors in a hospital or clinic laboratory. The student develops competency and improved self confidence in the laboratory workplace.

*Corequisite(s):* MLT 299

Information: Consent of instructor is required before enrolling in this course.

Offered: Summer.

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**MUSIC**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MUS 052 Introduction to Ear Training**

2 credit hours/ 2 periods (2 lec.)

Ear training for individuals with little or no musical background. Includes identification of keys on a piano keyboard and notes on the musical staff, visual and aural recognition of intervals, and dictation and performance of simple rhythmic patterns. Also includes sight singing of simple melodies, identifying major and minor key signatures and scales, singing of major and minor scales, and intervals. Also includes aural identification of individual pitches within major scales, and listening to short melodic figures and playing them back on keyboards.

*Recommendation: Students considering music as a major are encouraged to take MUS 052 and 102 concurrently.*

Offered: Fall, Spring.

**MUS 054 Introductory Jazz Improvisation**

2 credit hours/ 2 periods (2 lec.)

Basic principles and techniques of jazz improvisation. Enrollment determined by audition with instructor.

Information: May be taken six times for a maximum of twelve credit hours. Students chosen by audition.

Offered: Fall, Spring.

**MUS 055 Introduction to Piano I**

2 credit hours/ 2 periods (2 lec.)

Basic principles and techniques of piano playing in a group situation. Includes study of major/minor scales and key signatures, chords, repertory pieces, technique and finger strength, and good learning and practice methods. Also includes transposition of simple compositions, sight reading, and harmonizations of melodies.

Offered: Fall, Spring.

**MUS 056 Introduction to Piano II**

2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 055. Expansion and refinement of piano playing techniques.

Includes major and minor scales, chords, repertory pieces, technique, learning and practice methods, transposition, sight reading, and harmonizations.

Information: Designed for non-music majors.

Offered: Spring.

**MUS 100 Guitar I**

2 credit hours/ 2 periods (2 lec.)

Development of the principles of guitar playing with emphasis on a variety of styles and guitar repertoire. Includes parts of the guitar, music symbols, tuning, playing position, right and left hand techniques, notes on the first through third strings, notes on the fourth string, thumb technique, chord strumming, and right-hand arpeggio patterns. Also includes notes on the fifth and sixth strings, sharps and flats, twelve (12) bar blues, right hand chord technique, and open position chords.

Offered: Fall, Spring, Summer.

**MUS 101 Guitar II**

2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 100 with more detailed development of guitar skills. Includes basic musicianship, sight-reading, repertoire development, ensemble, improvisation.

*Prerequisite(s):* MUS 100.

Information: Prerequisites may be waived with consent of instructor.

Offered: Fall, Spring.

**MUS 102 Music Fundamentals**

3 credit hours/ 3 periods (3 lec.)

Introduction to fundamentals of music designed to develop basic literacy in music. Includes definitions, notation, rhythm and meter, intervals, scales and transposition, key signatures, and triads. Also includes specific size of intervals, chords and harmony, simple forms, and analyzing music.

*Recommendation: Students considering music as a major are encouraged to take MUS 052 and MUS 102 concurrently.*

Offered: Fall, Spring, Summer.

**MUS 108 Pima Jazz Band**

2 credit hours/ 3 periods (1 lec., 2 lab)

Rehearsal and performance of many styles of music in the jazz idiom. Includes progressive development of musical skills through interpretation of literature.

Information: Students chosen by audition. May be taken ten times for a maximum of twenty credit hours.

Offered: Fall, Spring.

**MUS 111 Exploring Music Through Piano**

3 credit hours/ 3 periods (3 lec.)

Keyboard application skills and music fundamentals. Includes keyboard orientation, tonality, piano proficiency, musical structure, musical texture, and style.

Offered: Fall, Spring.

**MUS 112 Community Jazz Band**

2 credit hours/ 3 periods (1 lec., 2 lab)

Rehearsal and performance of music in the Jazz idiom. Includes progressive development of musical skills through interpretation of professional literature.

Information: Students chosen by audition. Members selected primarily from Tucson's adult community. May be taken ten times for a maximum of twenty credit hours.

Offered: May not be offered this year, check class schedule.

**MUS 115 Guitar Ensemble**

1 credit hour/ 2 periods (2 lab)

In depth study of the music for guitar ensemble ranging from the Renaissance to the present. Includes interpretation of ensemble literature, practice of proper ensemble techniques of balance, intonation and timbre, and performance of selected compositions in a public recital.

Information: Students chosen by audition. May be taken ten times for a maximum of ten credit hours.

Offered: May not be offered this year, check class schedule.

**MUS 116 Pima Community College Orchestra**

2 credit hours/ 3 periods (1 lec., 2 lab)

Progressive development of musical skills through interpretation of orchestra literature. Includes participation in regular rehearsals and performances.

Information: Students chosen by audition. May be taken ten times for a maximum of twenty credit hours.

Offered: Fall, Spring.

**MUS 118 Mariachi Music I**

2 credit hours/ 3 periods (1 lec., 2 lab)

Progressive development of musical skills through interpretation of mariachi literature. Includes participation in regular rehearsals and performances.

Offered: Fall, Spring.

**MUS 119 Mariachi Music II**

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of MUS 118. Includes participation in regular rehearsals, performances.

*Prerequisite(s):* MUS 118.

Offered: Fall, Spring.



**MUS 120 Concert Band**

3 credit hours/ 5 periods (2 lec., 3 lab)

Progressive development of musical skills through interpretation of literature. Includes participation in regular rehearsals and performances.

Information: Students chosen by audition. May be taken 10 times for a maximum of thirty credit hours.

Offered: Fall, Spring.

**MUS 125 Structure of Music I**

3 credit hours/ 3 periods (3 lec.)

Review of music fundamentals. Includes form and analysis, nonharmonic tones and harmonic analysis, simple keyboard- style harmony, figured bass, chord functions, voicing chords voice leading, part-writing and seventh chords. Also includes cadences, chords in second inversion, harmonic progression, modulation by common chord, secondary dominants and chorale harmonizations.

Information: Required for all other music structure courses. Students who are music majors take MUS 125 and 127 concurrently.

Offered: Fall, Spring.

**MUS 126 Structure of Music II**

3 credit hours/ 3 periods (3 lec.)

Continuation of MUS 125. Includes chromatic harmony and melody, secondary dominants and modulation, seventh and ninth chords, large forms and genres, neopolitan and augmented sixth chords, and enharmonic relations. Also includes chromatic mediant and modulation, harmonic sequence, borrowed chords, and technical vocabulary.

Prerequisite(s): MUS 125.

Corequisite(s): MUS 129

Offered: Spring, Summer.

**MUS 127 Aural Perception I**

2 credit hours/ 2 periods (2 lec.)

Development of aural techniques. Includes rhythmic dictation, intervallic recognition, sight singing, rhythmic performance, clapping and counting rhythms.

Information: Students who are music majors take MUS 125 and 127 concurrently.

Offered: Fall, Spring.

**MUS 129 Aural Perception II**

2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 127. Includes aural approaches to chromatic harmony, melody, and associated structures, and advanced applications for rhythmic dictation, intervallic recognition, and general listening techniques.

Prerequisite(s): MUS 127.

Corequisite(s): MUS 126

Offered: Spring, Summer.

**MUS 130 Chorale (SATB)**

3 credit hours/ 5 periods (2 lec., 3 lab)

Selected group of mixed voices for interpretation of a wide variety of styles of music in concerts throughout the academic year. Includes progressive development of musical skills through interpretation of literature.

Information: Students chosen by audition. May be taken ten times for a maximum of thirty credit hours.

Offered: Fall, Spring.

**MUS 131 College Singers (SATB)**

3 credit hours/ 5 periods (2 lec., 3 lab)

Small chorale ensemble. Includes repertory and performance throughout the academic year with the best literature from all styles and periods. Also includes progressive development of musical skills through interpretation of literature.

Information: Students chosen by audition. May be taken ten times for a maximum of thirty credit hours.

Offered: Fall, Spring.

**MUS 136 Voice Class I**

2 credit hours/ 2 periods (2 lec.)

Practical training in basic skills and singing without specialization. Includes breathing, diction, tone, and rhythm.

Offered: Fall, Spring.

**MUS 137 Voice Class II**

2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 136. Includes practical training in basic skills and singing without specialization. Also includes breathing, diction and interpretation of song literature.

Prerequisite(s): MUS 136.

Offered: Spring.

**MUS 141 Piano Class I**

2 credit hours/ 2 periods (2 lec.)

Beginning instruction employing group and individual techniques in an electronic lab situation. Includes scales, chords, repertoire, technique, practice habits, transposition of single-line melodies, and sight-reading.

Offered: Fall, Spring.

**MUS 142 Piano Class II**

2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 141. Incorporates intermediate piano instruction of group and individual practice in an electronic lab. Includes scales, chords, harmonization of major and minor melodies with different accompaniment patterns, and transposition of short major and minor pieces. Also includes repertoire, continued technique and practice habits, and sight-reading.

Prerequisite(s): MUS 141.

Offered: Spring.

**MUS 143 Piano Class III**

2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 142. Incorporates intermediate piano instruction utilizing group and individual practice in an electronic lab. Includes scales, chords, arpeggios, harmonizations of major and minor pieces, transpositions, repertory pieces, technique and practice habits, sight-reading, and score-reading.

Prerequisite(s): MUS 142.

Offered: Fall.

**MUS 144 Piano Class IV**

2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 143. Incorporates advanced piano instruction utilizing group and individual practice in an electronic lab. Includes scales, arpeggios, learning methods, technique building exercises, memory method, and advanced methods of practicing.

Prerequisite(s): MUS 143.

Offered: Spring.

**MUS 147 Singing/Movement for the Stage**

2 credit hours/ 3 periods (1 lec., 2 lab)

Basics of singing in the context of movement on the stage. Includes familiarity with the stage and the movements that work best for the performer, how to get on and off stage as yourself or as a character, how to approach a characterization, how to make your body work for you, and how to move with or against the music. Also includes live accompaniment.

Information: Singing skill is required. May be taken four times for a maximum of eight credit hours.

Offered: May not be offered this year, check class schedule.

**MUS 148 Musical Theater Workshop**

2 credit hours/ 3 periods (1 lec., 2 lab)

Movement and singing to enhance projection and communication capabilities. Includes auditioning techniques, live accompaniment, and exploring the musical theater as a way to communicate.

Information: May be taken four times for a maximum of eight credit hours.

Offered: May not be offered this year, check class schedule.

**MUS 149 Opera Workshop**

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to the techniques of opera. Includes stage movement, character development, and acting. Also includes arias, duets, ensembles, and auditioning techniques.

Information: May be taken four times for a maximum of eight credit hours. Student chosen by audition.

Offered: Fall.

**MUS 151 Exploring Music**

3 credit hours/ 3 periods (3 lec.)

Introduction to musical styles with emphasis on listening and application of the basic elements of music (melody, rhythm, harmony, form and timbre) to each style.

Offered: Fall, Spring, Summer.

**MUS 154 Jazz Improvisation**

2 credit hours/ 2 periods (2 lec.)

Study of jazz improvisation on various instruments. Includes rhythmic, melodic, and harmonic aspects of jazz styles. Also includes an emphasis on progressive development of musical skills through interpretation of literature.

Information: Students chosen by audition. May be taken ten times for a maximum of twenty credit hours.

Offered: Fall, Spring.

**MUS 155 Introduction to Electronic Music I**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to producing music with Musical Instrument Digital Interface (MIDI) configurations. Includes computers, printers, synthesizers and other compatible MIDI configurations.

Recommendation: Ability to read music before enrolling in this course.

Offered: Fall, Spring.

**MUS 156 Introduction to Electronic Music II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of MUS 155. Includes emphasis on more complex configurations, their applications in song arrangements, and continued study of music production with Musical Instrument Digital Interface (MIDI) configurations.

Prerequisite(s): MUS 155.

Offered: Spring.



**MUS 157 Music Industry I: Marketing, Merchandising and the Law**  
3 credit hours/ 3 periods (3 lec.)

Operation, scope and career opportunities in the music business. Includes focus on music in the marketplace, songwriting/composition and publishing. Also includes copyright procedures, business affairs, agents, artist management, and concert production.  
Offered: Fall.

**MUS 158 Music Industry II: Music in Recording and Mass Media**  
3 credit hours/ 3 periods (3 lec.)

Operation, scope, and career opportunities in the music business. Includes focus on the record industry, environmental music, uses of music in radio, telecommunications and film, and career options.  
Offered: Spring.

**MUS 160 Popular Music in America**  
3 credit hours/ 3 periods (3 lec.)

Study of the history of popular music culture in America beginning with the foundations of music in colonial America through current trends in today's society. Includes ragtime, blues, jazz, country, Broadway musical, folk, and rock.  
Offered: Fall, Spring, Summer.

**MUS 201 History and Literature of Music I**  
3 credit hours/ 3 periods (3 lec.)

Music history and literature from the ancient Greeks through the Baroque. Includes emphasis on specific works and composers as representative of the evolution of Western music.

Prerequisite(s): MUS 125 or concurrent enrollment.

Offered: May not be offered this year, check class schedule.

**MUS 202 History and Literature of Music II**  
3 credit hours/ 3 periods (3 lec.)

Music history and literature from Bach to the present. Includes emphasis on specific works and composers as representative of the evolution of Western music.

Prerequisite(s): MUS 125 or concurrent enrollment.

Offered: Spring.

**MUS 203 Popular Music Styles**  
3 credit hours/ 3 periods (3 lec.)

Introduction to the fundamentals of popular music styles. Includes formal elements of a popular song, chords and progressions, rhythm and arrangement styles, song forms, lead sheets, and connections of lyrics and vocals. Also includes instrumental sections, historical roots, standard rhythmic writing, and scoring.

Prerequisite(s): MUS 102 or 125 or consent of instructor.

Offered: Spring.

**MUS 207 Music Composition**  
3 credit hours/ 3 periods (3 lec.)

Development of compositional skills. Includes techniques, notation, and formal models. Also includes problems of instrumentation and the practice of writing music.

Prerequisite(s): MUS 125.

Offered: May not be offered this year, check class schedule.

**MUS 220 Community Wind Ensemble**  
1 credit hour/ 2 periods (2 lab)

Progressive development of musical skills through interpretation of advanced wind literature. Includes mind/body control, form, analysis, and ensemble performance. Information: Students chosen by audition. High school experience in musical performance or higher required. May be taken eighteen times for a maximum of eighteen credit hours.

Offered: May not be offered this year, check class schedule.

**MUS 223 Structure of Music III**  
3 credit hours/ 3 periods (3 lec.)

Continuation of MUS 126. Includes the nature of polyphony, writing simple melodic lines, basic contrapuntal technique, first species, fugue, theme and variations, binary form, rounded binary form, rondo, sonata forms, concerto form.

Prerequisite(s): MUS 126.

Corequisite(s): MUS 224

Offered: Fall.

**MUS 224 Aural Perception III**  
2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 129. Includes scales, melodies made of chords, rhythmic dictation and clapping notated rhythms, syncopated rhythms, and sight singing melodies. Also includes motives, motivic, themes, and thematic development, and simple contrapuntal dictation and singing.

Prerequisite(s): MUS 129.

Corequisite(s): MUS 223

Offered: Fall.

**MUS 226 Structure of Music IV**  
3 credit hours/ 3 periods (3 lec.)

Continuation of MUS 223. Includes extended chromaticism, aspects of form, influence of musical nationalism, compositional techniques and technical

vocabulary, and late romantic and early 20th century tonal music.

Prerequisite(s): MUS 223.

Corequisite(s): MUS 228

Offered: Spring.

**MUS 228 Aural Perception IV**  
2 credit hours/ 2 periods (2 lec.)

Continuation of MUS 224. Includes characteristics of modern music, integration of melody, harmony, and rhythm, two to four-part dictation, and sight singing.

Prerequisite(s): MUS 224.

Corequisite(s): MUS 226

Offered: Spring.

**MUS 257 Music Recording and Production**  
3 credit hours/ 3 periods (3 lec.)

Introduction to the recording and production of music. Includes the elements of sound, the mixing board, hard drive recorder, microphone types and applications, recording strategies and room use, lab software for editing, mixing and re-recording, and creating a final project.

Offered: Fall, Spring.

**MUS 296 Independent Studies in Music**  
1-3 credit hours/ 3-9 periods (1-3 lec., 2-6 lab)

Composition and/or in-depth study in an area of the student's choice with approval by the supervising instructor.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall, Spring.

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**MUSIC STUDIO INSTRUCTION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MUP 061 Studio Instruction: Brass (Non Major)**  
2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 062 Studio Instruction: Guitar (Non Major)**  
2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 063 Studio Instruction: Percussion (Non Major)**  
2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 064 Studio Instruction: Piano (Non Major)**  
2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 065 Studio Instruction: Strings (Non Major)**  
2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 066 Studio Instruction: Voice (Non Major)**  
2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 067 Studio Instruction: Woodwinds (Non Major)**  
2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 068 Studio Instruction: Non Major**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall, Spring.

**MUP 161 Studio Instruction: Brass I (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 162 Studio Instruction: Guitar I (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 163 Studio Instruction: Percussion I (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 164 Studio Instruction: Piano I (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 165 Studio Instruction: Strings I (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 166 Studio Instruction: Voice I (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 167 Studio Instruction: Woodwinds I (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 168 Studio Instruction I: (Major)**

2 credit hours/ 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

Information: Students chosen by audition.

Offered: Fall, Spring.

**MUP 171 Studio Instruction: Brass II (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 161. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

Prerequisite(s): MUP 161.

Offered: Fall, Spring.

**MUP 172 Studio Instruction: Guitar II (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 162. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

Prerequisite(s): MUP 162.

Offered: Fall, Spring.

**MUP 173 Studio Instruction: Percussion II (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 163. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

Prerequisite(s): MUP 163.

Offered: Fall, Spring.

**MUP 174 Studio Instruction: Piano II (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 164. Private weekly instrumental lessons. Includes further development of performance skills and participation in recitals and jury exams.

Prerequisite(s): MUP 164.

Offered: Fall, Spring.

**MUP 175 Studio Instruction: Strings II (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 165. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 165.

Offered: Fall, Spring.

**MUP 176 Studio Instruction: Voice II (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 166. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 166.

Offered: Fall, Spring.

**MUP 177 Studio Instruction: Woodwinds II (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 167. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 167.

Offered: Fall, Spring.

**MUP 178 Studio Instruction II: (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 168. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 168.

Offered: Fall, Spring.

**MUP 261 Studio Instruction: Brass III (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 171. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 171.

Offered: Fall, Spring.

**MUP 262 Studio Instruction: Guitar III (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 172. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 172.

Offered: Fall, Spring.

**MUP 263 Studio Instruction: Percussion III (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 173. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 173.

Offered: Fall, Spring.

**MUP 264 Studio Instruction: Piano III (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 174. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 174.

Offered: Fall, Spring.

**MUP 265 Studio Instruction: Strings III (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 175. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 175.

Offered: Fall, Spring.

**MUP 266 Studio Instruction: Voice III (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 176. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 176.

Offered: Fall, Spring.

**MUP 267 Studio Instruction: Woodwinds III (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 177. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 177.

Offered: Fall, Spring.

**MUP 268 Studio Instruction III: (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 178. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

Prerequisite(s): MUP 178.

Offered: Fall, Spring.

**MUP 271 Studio Instruction: Brass IV (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 261. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 261.

Offered: Fall, Spring.

**MUP 272 Studio Instruction: Guitar IV (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 262. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

Prerequisite(s): MUP 262.

Offered: Fall, Spring.

**MUP 273 Studio Instruction: Percussion IV (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 263. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

Prerequisite(s): MUP 263.

Offered: Fall, Spring.

**MUP 274 Studio Instruction: Piano IV (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 264. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 264.

Offered: Fall, Spring.

**MUP 275 Studio Instruction: Strings IV (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 265. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 265.

Offered: Fall, Spring.

**MUP 276 Studio Instruction: Voice IV (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 266. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 266.

Offered: Fall, Spring.

**MUP 277 Studio Instruction: Woodwinds IV (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 267. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 267.

Offered: Fall, Spring.

**MUP 278 Studio Instruction IV: (Major)**

2 credit hours/ 4 periods (4 lab)

Continuation of MUP 268. Private weekly instrumental lessons. Includes further development of performance skills, participation in student recitals and jury exams.

Prerequisite(s): MUP 268.

Offered: Fall, Spring.

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## NURSING

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**NRS 104 Nursing Process I**

4 credit hours/ 4 periods (4 lec.)

Nursing 104 introduces the student to the application of the nursing process and to the concepts of client, health, environment and nurse with emphasis on caring for the adult and older adult client. This course introduces the student to behaviors that serve as the basis of effective nursing practice: (1) a safe practitioner, (2) an effective communicator, (3) a manager/teacher, (4) a culturally competent/caring healthcare provider, and (5) professional and ethical issues of being a nurse. The student applies nursing theory in the college laboratory and the clinical setting while caring for adults and older adults in acute-care, long term care and community environments.

Corequisite(s): HCA 102, HCA 155, NRS 104LC, NRS 104LS

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing department before enrolling in this course.

Offered: Fall, Spring.

**NRS 104LC Nursing Process I Clinical Lab**

3 credit hours/ 9 periods (9 lab)

This is the Clinical Lab portion of NRS 104.

Corequisite(s): HCA 102, HCA 155, NRS 104, NRS 104LS

Offered: Fall, Spring.

**NRS 104LS Nursing Process I Skills Lab**

1 credit hour/ 3 periods (3 lab)

This is the Skills Lab portion of NRS 104.

Corequisite(s): HCA 102, HCA 155, NRS 104, NRS 104LC

Offered: Fall, Spring.

**NRS 105 Nursing Process II**

4 credit hours/ 4 periods (4 lec.)

Continuation of NRS 104. Application of the nursing process and expansion on the concepts of client, health, environment and nurse, with emphasis on caring for adult clients with common health alterations. Expansion of behaviors that are the basis of effective nursing practice: (1) safe practitioner, (2) effective communicator, (3) manager/teacher, (4) a culturally competent/caring healthcare provider, and (5) professional and ethical issues of being a nurse. Includes additional application of theory in the college laboratory and the clinical setting in acute care environments.

Prerequisite(s): NRS 104, 104LC, and 104LS.Corequisite(s): BIO 205, NRS 105LC, NRS 105LS ECE 107 or 117.

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing department before enrolling in this course.

Offered: Fall, Spring.

**NRS 105LC Nursing Process II Clinical Lab**

4 credit hours/ 12 periods (12 lab)

This is the Clinical Lab portion of NRS 105.

Corequisite(s): BIO 205, NRS 105, NRS 105LS ECE 107 or 117.

Offered: Fall, Spring.

**NRS 105LS Nursing Process II Skills Lab**

1 credit hour/ 3 periods (3 lab)

This is the Skills Lab portion of NRS 105.

Corequisite(s): BIO 205, NRS 105, NRS 105LC ECE 107 or 117.

Offered: Fall, Spring.

**NRS 180 Transition to Practical Nursing**

2 credit hours/ 2 periods (2 lec.)

NRS 180 has been developed to provide the theoretical and clinical preparation to qualify the student to apply for licensure by the Arizona State Board of Nursing as a Practical Nurse (LPN). Includes application of the nursing process to provide basic care to families in the maternity cycle, health of children, and psychosocial health. Also includes additional clinical laboratory application of selected nursing skills and knowledge to the developing family and child. Also includes the role of the LPN in relation to the nursing process.

Prerequisite(s): BIO 205, ECE 107 or 117, HCA 102, 155, NRS 104, concurrent enrollment or completion of NRS 105, WRT 101.Corequisite(s): NRS 180LC

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing Department before enrolling in this course.

Offered: Spring.

**NRS 180LC Transition to Practical Nursing Lab**

.5 credit hours/ 1.5 periods (1.5 lab)

This is the clinical lab portion of NRS 180.

Prerequisite(s): BIO 205, ECE 107 or ECE 117, HCA 102, HCA 155, NRS 104, concurrent enrollment or completion of NRS 105, WRT 101.Corequisite(s): NRS 180

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing Department before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**NRS 188 Transition to Associate Degree Nursing**

4 credit hours/ 4 periods (4 lec.)

Nonclinical course facilitating transition of the Licensed Practical Nurse (LPN) into the Pima Community College Associate Degree Nursing program. Includes role transition through the application of the nursing process and orients the student to the philosophy and major concepts and program outcomes of the ADN program, and focus on adult clients experiencing selected health alterations. Also includes the role of computers in society and in the healthcare environment.

Corequisite(s): NRS 188LS

Information: In order to enroll in this course, you must hold a current valid Licensed Practical Nurse (LPN) license in Arizona. You must also meet all admission criteria for the Associate Degree Nursing program and obtain consent of the Nursing Department before enrolling in this course.

Offered: Fall, Spring.

**NRS 188LS Transition to Associate Degree Nursing Skills Lab**

1 credit hour/ 3 periods (3 lab)

This is the Skills Lab portion of NRS 188.

Corequisite(s): NRS 188

Offered: May not be offered this year, check class schedule.



**NRS 196 Independent Study in Nursing**

1-9 credit hours/ 1-9 periods (1-9 lec.)

Independent readings or special projects. Content to be determined by conference between student and instructor.

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing Department before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**NRS 201 Nursing Process III**

5 credit hours/ 5 periods (5 lec.)

Continuation of NRS 105 or NRS 188. Application of the nursing process and expansion on the concepts of nurse, health, client and environment, with an emphasis on family, child and clients with mental health disorders. Includes content related to the roles of safe practitioner, effective communicator, manager/teacher and culturally competent/caring healthcare provider. Additionally professional and ethical issues related to provision of nursing care are included. There is a focus on family's birth experience as well as complex health alterations related to the developing family, child and clients with mental health disorders. Also includes additional clinical and laboratory application of selected nursing skills and knowledge to the developing family, child and clients with mental health disorders.

Prerequisite(s): NRS 105 or 188 and all first year corequisites.

Corequisite(s): NRS 201LC, PSY 101, WRT 102

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing department before enrolling in this course.

Offered: Fall, Spring, Summer.

**NRS 201LC Nursing Process III Clinical Lab**

4 credit hours/ 12 periods (12 lab)

This is the Clinical Lab portion of NRS 201.

Corequisite(s): NRS 201, PSY 101, WRT 102

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing Department before enrolling in this course.

Offered: Fall, Spring, Summer.

**NRS 202 Nursing Process IV**

3 credit hours/ 3 periods (3 lec.)

Continuation of NRS 201. Application and synthesis of the nursing process with expansion of the concepts of client, health, environment and nurse. Continues to develop performance behaviors that will serve as the basis of effective nursing practice: (1) safe practitioner, (2) effective communicator, (3) manager/teacher, (4) culturally competent/caring health care provider, (5) professional and ethical practitioner. Applies nursing theory in the clinical setting while caring for adults with complex health alterations.

Prerequisite(s): NRS 104, 105, 188, and 201.

Corequisite(s): NRS 202CA, NRS 202CB, NRS 203

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing department before enrolling in this course. Involves student completion of a five- week preceptorship in an assigned healthcare setting.

Offered: Fall, Spring.

**NRS 202CA Nursing Process IV - Clinical Lab - A**

3.5 credit hours/ 10.5 periods (10.5 lab)

This is the Clinical Lab Part A portion of NRS 202.

Corequisite(s): NRS 202, NRS 202CB, NRS 203 FSN 127 or 154.

Offered: May not be offered this year, check class schedule.

**NRS 202CB Nursing Process IV -Clinical Lab - B**

2.5 credit hours/ 7.5 periods (7.5 lab)

This is the Clinical Lab Part B portion of NRS 202.

Corequisite(s): NRS 202, NRS 202CA, NRS 203 FSN 127 or 154.

Offered: May not be offered this year, check class schedule.

**NRS 202LC Nursing Process IV ADN Clinic**

0 credit hours/ 18 periods (18 lab)

Clinical lab for NRS 202.

Corequisite(s): NRS 202

Offered: Fall, Spring.

**NRS 203 Trends and Issues in Nursing**

1 credit hour/ 1 period (1 lec.)

Exploration of the role of the nurse as a safe practitioner with legal and ethical responsibilities. Includes current issues and trends in nursing and health care delivery and the role of the nurse as a member of the profession.

Prerequisite(s): NRS 201.

Corequisite(s): NRS 202, NRS 202CA, NRS 202CB

Information: Students must be admitted to the PCC Nursing program and obtain consent of the Nursing department before enrolling in this course.

Offered: Fall, Spring.

**NURSING ASSISTANT**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**NRA 101 Nursing Assistant**

4 credit hours/ 2 periods (2 lec.)

Basic client care nursing skills. Includes theory base for direct client care and fundamental and advanced psychomotor skills at the nursing assistant level.

Corequisite(s): NRA 101LC, NRA 101LS

Information: Students must obtain consent from the Nursing Department before enrolling in this course.

Offered: Fall, Spring, Summer.

**NRA 101LC Nursing Assistant Clinical**

0 credit hours/ 3 periods (3 lab)

Clinical Lab for NRA 101.

Corequisite(s): NRA 101, NRA 101LS

Offered: Fall, Spring, Summer.

**NRA 101LS Nursing Assistant Skills**

0 credit hours/ 3 periods (3 lab)

Skills Lab for NRA 101.

Corequisite(s): NRA 101, NRA 101LC

Offered: Fall, Spring, Summer.

**NRA 102 Patient Care Technician**

2 credit hours/ 1 periods (1 lec.)

Multi-skilled approach to patient care. Includes legal and ethical responsibility, asepsis, dressing changes, catheterization, electrocardiograms, phlebotomy, tube feeding and communication skills.

Corequisite(s): NRA 102LC, NRA 102LS

Information: Students must obtain consent of the Nursing Department before enrolling in this course. You must be a Certified Nursing Assistant or have successfully completed NRA 101 with the last two years to enroll in this course.

Offered: Fall, Spring, Summer.

**NRA 102LC Patient Care Tech Clinical**

0 credit hours/ 3 periods (3 lab)

Clinical Lab for NRA 102.

Corequisite(s): NRA 102, NRA 102LS

Offered: Fall, Spring, Summer.

**NRA 102LS Patient Care Tech Skills**

0 credit hours/ 3 periods (3 lab)

Skills lab for NRA 102.

Corequisite(s): NRA 102, NRA 102LC

Offered: Fall, Spring, Summer.

**OFFICE AND ADMINISTRATIVE PROFESSIONS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**OAP 050 Fundamentals of Business English**

1 credit hour/ 1 period (1 lec.)

English basics in business. Includes parts of speech, sentence patterns, and punctuation. Also includes emphasis on business-related material.

Offered: May not be offered this year, check class schedule.

**OAP 100 Data Entry Beginning Keystroke Development**

2 credit hours/ 4 periods (4 lab)

Numeric key pad training for beginning level speed and accuracy. Includes ten key pad, alpha-numeric pre-timed and self-timed exercises, and dexterity drills.

Prerequisite(s): OAP 111A.

Recommendation: Keyboarding proficiency at 25-30 WPM recommended before enrolling in this course.

Offered: Fall, Spring, Summer.

**OAP 111 Computer Keyboarding and Document Production**

3 credit hours/ 5 periods (2 lec., 3 lab)

Theory and practice of computer keyboarding. Includes speed and accuracy techniques, language arts skills, correspondence, employment documents, and word processing commands.

Offered: Fall, Spring, Summer.



**OAP 111A Computer Keyboarding & Document Production: Keyboard**

1 credit hour/ 1.7 periods (.7 lec., 1 lab)

Techniques and functions for computer keyboarding skills. Includes keyboarding, speed and accuracy, language arts, and word processing commands.

Information: OAP 111A, 111B, and 111C together constitute OAP 111.

Offered: Fall, Spring, Summer.

**OAP 111B Computer Keyboarding and Document Production: Formatting Documents**

1 credit hour/ 1.7 periods (.7 lec., 1 lab)

Continuation of OAP 111A. Includes speed and accuracy, language arts, correspondence, and word processing commands.

Prerequisite(s): OAP 111A.

Information: OAP 111A, 111B, and 111C together constitute OAP 111. Prerequisite may be waived with equivalent proficiency. See an OAP instructor for information.

Offered: Fall, Spring, Summer.

**OAP 111C Computer Keyboarding and Document Production: Applications**

1 credit hour/ 1.6 periods (.6 lec., 1 lab)

Continuation of OAP 111B. Includes speed and accuracy, correspondence, employment documents, language arts, and word processing command.

Prerequisite(s): OAP 111B.

Information: OAP 111A, 111B, and 111C together constitute OAP 111.

Offered: Fall, Spring, Summer.

**OAP 114 Computer Keyboarding: Skill Building**

3 credit hours/ 6 periods (6 lab)

Development of computer keyboarding. Includes skill assessment, skill building development, data input accuracy, increasing keyboarding accuracy and skill building software.

Recommendation: Completion of OAP 111A or equivalent proficiency on computer keyboard before enrolling in this course.

Offered: Fall, Spring, Summer.

**OAP 123 Professional Development for Administrative Support**

3 credit hours/ 6 periods (6 lab)

Procedures and skills for securing a job. Includes resume development, interview techniques, application forms, application letter, research requirements, customer service skills, job shadowing, and sexual harassment.

Recommendation: Completion of OAP 111 or equivalent proficiency on computer keyboard before enrolling in this course.

Offered: Fall, Spring.

**OAP 132 Records Management: Filing Systems**

3 credit hours/ 3 periods (3 lec.)

Principles and procedures of filing systems. Includes rules for indexing, coding, and filing, cross references, filing systems, advantages and disadvantages of each filing system, file maintenance and management, and simulations.

Offered: Fall, Spring.

**OAP 133 Records Management: Development of a Program**

3 credit hours/ 3 periods (3 lec.)

Principles of file management from creation to final disposition. Includes records information management program development, technology in records information management, related records information management functions, and inactive records information management.

Offered: Fall, Spring.

**OAP 141 Legal Terms**

3 credit hours/ 3 periods (3 lec.)

Language used in a legal setting. Includes general terminology, court system, and specialized areas of law.

Offered: Fall, Spring.

**OAP 142 Legal Procedures I**

3 credit hours/ 3 periods (3 lec.)

General law office procedures. Includes legal support staff, career development, legal ethics, written communication, calendaring, court system, preparation of legal documents, family law, contract law, and employment law.

Prerequisite(s): OAP 114.

Offered: Fall, Spring.

**OAP 143 Legal Procedures II**

4 credit hours/ 4 periods (4 lec.)

Continuation of OAP 142. Includes legal support staff, court systems, civil litigation and torts, and criminal litigation procedures.

Prerequisite(s): OAP 142.

Information: Prerequisite may be waived depending on work experience. See an OAP instructor for prerequisite information.

Offered: Fall, Spring.

**OAP 151 Business English**

3 credit hours/ 3 periods (3 lec.)

English fundamentals essential for modern business communication. Includes reference skills, parts of speech, basic sentence terms, verbals, types of sentences, punctuation and grammar usage.

Recommendation: Completion of OAP 050 or assessment at the WRT 100 level before enrolling in this course.

Offered: Fall, Spring.

**OAP 161 Medical Office Procedures**

4 credit hours/ 5 periods (3 lec., 2 lab)

Services and procedures used in a medical office. Includes qualities required, health care industry, human relations, medical terms and coding procedures, telephone techniques, financial reports, word processing, administrative support and medical billing, filing, machine transcription, mail/email processing and correspondence, medical health record and documentation, insurance and claims, and employment opportunities.

Prerequisite(s): OAP 111.Recommendation: Completion of OAP 162 before enrolling in this course.

Offered: Fall, Spring.

**OAP 162 Medical Terms I**

3 credit hours/ 3 periods (3 lec.)

Terminology used in the medical field. Includes word parts and forms, terms pertaining to the body as a whole, terminology beyond basic word analysis, prefixes, digestive system, pathology of the digestive system, laboratory tests - digestive system, clinical procedures - digestive system, urinary system, female reproductive system, male reproductive system, nervous system, cardiovascular system.

Offered: Fall, Spring.

**OAP 162A Medical Terms I: Module A**

1 credit hour/ 1 period (1 lec.)

Terminology used in the medical field. Includes word parts and forms, terms pertaining to the body as a whole, terminology beyond basic word analysis, and reference materials.

Information: OAP 162A, 162B, 162C together constitute OAP 162.

Offered: Spring.

**OAP 162B Medical Terms I: Module B**

1 credit hour/ 1 period (1 lec.)

Continuation of OAP 162A. Includes prefixes, digestive system, pathology of the digestive system, laboratory tests - digestive system, clinical procedures - digestive system, urinary system, and reference materials.

Prerequisite(s): OAP 162A.

Information: OAP 162A, 162B, 162C together constitute OAP 162.

Offered: Spring.

**OAP 162C Medical Terms I: Module C**

1 credit hour/ 1 period (1 lec.)

Continuation of OAP 162B. Includes anatomy and terminology of the female reproductive system, male reproductive system, nervous system, cardiovascular system, and reference materials.

Prerequisite(s): OAP 162B.

Information: OAP 162A, 162B, 162C together constitute OAP 162.

Offered: Spring.

**OAP 164 Medical Transcription I**

3 credit hours/ 4 periods (2 lec., 2 lab)

Terms and format for transcribing medical reports. Includes ethics and legal responsibility, preparation of medical reports, transcription of medical records, rules and medical terminology.

Prerequisite(s): OAP 162.Recommendation: Experience in the medical field and word processing experience highly recommended before enrolling in this course.

Offered: Fall, Spring.

**OAP 171 Office Procedures**

4 credit hours/ 5 periods (3 lec., 2 lab)

Functions and procedures used in a wide range of office activities. Includes business operations, visitors and clients, office functions, document production, communication skills, office duties and tasks travel arrangements, meetings and conferences, office equipment, and professional attitudes and image, Internet exploration, and job evaluation.

Prerequisite(s): OAP 111.

Offered: Fall, Spring.

**OAP 199 Introduction to Co-op: Office and Administrative Professions**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education for first-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience.

Corequisite(s): OAP 199WK

Information: May be taken two times for a maximum of two credit hours.

Offered: Fall, Spring, Summer.

**OAP 199WK Co-op Work: Office and Administrative Professions**

1-8 credit hours/ 5-40 periods (5-40 lab)

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

Corequisite(s): OAP 199

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: Fall, Spring, Summer.

**OAP 224 Machine Transcription**

3 credit hours/ 4 periods (2 lec., 2 lab)

Skills and techniques of transcribing dictated materials. Includes transcription equipment, transcription techniques, language arts development, mailable documents, and career opportunity awareness.

Prerequisite(s): OAP 111 and 151.

Information: Keyboarding speed of 35 WPM and ability to format letters, memos, and reports before enrolling in this course.

Offered: Fall, Spring.

**OAP 242 Legal Procedures III**

4 credit hours/ 4 periods (4 lec.)

Continuation of OAP 143. Includes business organizations, real estate, estate planning, wills and trusts, probate and protective proceedings.

Prerequisite(s): OAP 143.

Information: Prerequisite may be waived depending on work experience. See an OAP instructor for prerequisite information.

Offered: Fall, Spring.

**OAP 251 Business Communications**

3 credit hours/ 3 periods (3 lec.)

Principles of effective writing and listening skills. Includes language development, verbal and nonverbal communications, customer relations, and writing and editing correspondence.

Prerequisite(s): OAP 151.

Information: Prerequisite may be waived depending on work experience. See an OAP instructor for prerequisite information.

Offered: Fall, Spring.

**OAP 262 Medical Terms II**

3 credit hours/ 3 periods (3 lec.)

Continuation of OAP 162. Includes anatomy and terminology of the respiratory system, blood system, lymphatic and immune system, musculoskeletal system, skin, sense organs: eyes and ears, endocrine system, cancer (oncology) medicine, radiology and nuclear medicine, pharmacology, psychiatry, language of medicine, and reference materials - advanced.

Prerequisite(s): OAP 162.

Offered: Fall, Spring.

**OAP 262A Medical Terms II: Module A**

1 credit hour/ 1 period (1 lec.)

Continuation of OAP 162. Includes anatomy and terminology of the respiratory system, blood system, lymphatic and immune system, musculoskeletal system, and reference materials - advanced.

Prerequisite(s): OAP 162.

Information: OAP 262A, 262B, 262C together constitute OAP 262.

Offered: Summer.

**OAP 262B Medical Terms II: Module B**

1 credit hour/ 1 period (1 lec.)

Continuation of OAP 262A. Includes skin, sense organs: eyes and ears, endocrine system, cancer (oncology) medicine, and reference materials - advanced.

Prerequisite(s): OAP 262A.

Information: OAP 262A, 262B, 262C together constitute OAP 262.

Offered: Summer.

**OAP 262C Medical Terms II: Module C**

1 credit hour/ 1 period (1 lec.)

Continuation of OAP 262B. Includes radiology and nuclear medicine, pharmacology, psychiatry, language of medicine, and reference materials - advanced.

Prerequisite(s): OAP 262B.

Information: OAP 262A, 262B, 262C, together constitute OAP 262.

Offered: Summer.

**OAP 263 Medical Terminology for Disease Pathology**

3 credit hours/ 3 periods (3 lec.)

Examination of disease processes and their effects on the systems of the human body. Includes introduction to diseases, anatomy and physiology, inflammation and immunity, infectious diseases, neoplasms, hereditary diseases, nutritional diseases, and diseases of the organs and body system.

Prerequisite(s): OAP 262.

Offered: Fall, Spring.

**OAP 264 Medical Transcription II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of OAP 164. Includes punctuation, capitalization, numbers, figures, abbreviations, business letter transcription, proofreading, spelling, word division and reference books.

Prerequisite(s): OAP 164, and 262.Recommendation: Keyboarding at 50 WPM is recommended before enrolling in this course.

Offered: Fall, Spring.

**OAP 266 Medical Transcription III**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of OAP 264. Includes advanced training in punctuation, capitalization, rules, medical correspondence, proofreading, prefixes and suffixes, transcription, and medical terms.

Prerequisite(s): OAP 264.Recommendation: Keyboarding at 60 WPM is recommended before enrolling in this course.

Offered: Fall, Spring.

**OAP 299 Introduction to Co-op: Office and Administrative Professions**

1 credit hour/ 1 period (1 lec.)

Introduction to Cooperative Education for second-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience.

Corequisite(s): OAP 299WK

Information: May be taken two times for a maximum of two credit hours.

Offered: May not be offered this year, check class schedule.

**OAP 299WK Co-op Work: Office and Administrative Professions**

1-8 credit hours/ 5-40 periods (5-40 lab)

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

Corequisite(s): OAP 299

Information: May be taken two times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

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**OPTICAL SCIENCE**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**OPS 201 Geometrical and Instrumental Optics I**

3 credit hours/ 3 periods (3 lec.)

Basic principles of light, refraction, reflection, properties of optical glass, prisms, paraxial optics, pupils and stops, visual and other basic instruments, aberrations, measurements, and testing.

Prerequisite(s): ENG 110IN, MAT 220, and PHY 210/210LB.Corequisite(s): OPS 201LB

Offered: Fall.

**OPS 201LB Geometrical and Instrumental Optics I Laboratory**

1 credit hour/ 4 periods (4 lab)

Cleaning optics, measuring refractive indices, reflection, deviating prisms, scanners, ideal imaging, thin lenses, thick lenses, Gaussian reduction, and throughput.

Corequisite(s): OPS 201

Offered: Fall.

**OPS 202 Geometrical and Instrumental Optics II**

3 credit hours/ 3 periods (3 lec.)

Optical instruments, field and relay lenses, telescopes, microscopes, optical materials, achromatization, illumination, cameras, and projectors.

Prerequisite(s): OPS 201/201LB.Corequisite(s): OPS 202LB

Offered: Spring.

**OPS 202LB Geometrical and Instrumental Optics II Laboratory**

1 credit hour/ 4 periods (4 lab)

Measuring refractive indices, dispersing and deviating prisms, thin lenses, thick lenses, aberration evaluation, Keplerian and Galileo telescopes, and compound microscopes.

Corequisite(s): OPS 202

Offered: Spring.

## PARALEGAL

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### PAR 101 Introduction to Paralegal Careers

3 credit hours/ 3 periods (3 lec.)

Role, responsibilities and ethical standards of the paralegal. Includes paralegal employment and regulation, ethical rules of the legal profession, law office administration and systems, communication, introduction to legal research and legal analysis, state and federal judicial systems, and overview of litigation and specialty areas of law.

Offered: Fall, Spring.

### PAR 102 Civil Litigation Procedures I

3 credit hours/ 3 periods (3 lec.)

Principles and procedures for commencement of civil litigation. Includes rules of civil procedure, subject matter jurisdiction, venue, statutes of limitations, parties, pleading format, preparation of complaint and answer, counterclaims, crossclaims, and third party practice. Also includes the causes of action, remedies, and potential defenses in contract and tort law.

*Prerequisite(s): PAR 101 or concurrent enrollment, and REA 112, or a reading assessment score of 90 or higher on the college reading assessment.*

Offered: Fall, Spring.

### PAR 103 Legal Research

3 credit hours/ 3 periods (3 lec.)

Principles and techniques of legal research. Includes categories of research materials, citing legal material, finding and using secondary authority, finding tools. Shepards Citators, case law, constitutions, statutes and administrative law, analyzing research problems, and preparing research reports.

*Prerequisite(s): PAR 101 and WRT 102.*

Information: Prerequisites may be waived if employed in a legal-related field, or if pursuing a post-degree certificate; see a PAR advisor or course instructor.

Offered: Fall, Spring.

### PAR 104 Paralegal Ethics

3 credit hours/ 3 periods (3 lec.)

Rules and principles of professional responsibility in the legal field. Includes sources of the rules of legal ethics, ethical guidelines and attorney supervision of paralegals, unauthorized practice of law, confidentiality, conflicts of interest, advertising and solicitation, attorney's fees and fiduciary duties, competence, malpractice, ethical conduct issues in litigation, and professional integrity issues.

*Prerequisite(s): PAR 103 or concurrent enrollment.*

Information: Prerequisite may be waived if employed in a legal-related field, or if pursuing a post-degree certificate; see a PAR advisor or course instructor.

Offered: Fall, Spring.

### PAR 106 Civil and Criminal Evidence

3 credit hours/ 3 periods (3 lec.)

Paralegal's role in the analysis and application of the rules of evidence. Includes relevancy and its limits, privileges, use, impeachment, and exclusion of witness, opinion and expert testimony, hearsay, authentication, and contents of writings, recordings, and photographs.

*Prerequisite(s): PAR 103 or concurrent enrollment.*

Information: Prerequisite may be waived if employed in a legal-related field, or if pursuing a post-degree certificate; see a PAR advisor or course instructor.

Offered: Fall, Spring.

### PAR 202 Civil Litigation Procedures II

3 credit hours/ 3 periods (3 lec.)

Continuation of PAR 102. Includes discovery/disclosure procedures in Federal Court and in Arizona Superior Court, file organization and document control, pre-trial motions, gathering and organizing evidence, preparation of witnesses, alternative dispute resolutions, trial, post-trial and appellate procedures.

*Prerequisite(s): PAR 102.*

Offered: Fall, Spring.

### PAR 203 Tort Law Procedures

3 credit hours/ 3 periods (3 lec.)

Concepts and procedures used in tort law cases. Includes tort litigation procedures and tort case law in the areas of negligence, professional negligence, strict liability, product liability, liability issues, and insurance coverage. Also includes interviewing and investigation techniques for the paralegal in tort cases.

*Prerequisite(s): PAR 101 and 102.*

Information: Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Fall.

### PAR 204 Wills, Trusts, and Estates

3 credit hours/ 3 periods (3 lec.)

Preparation to assist a lawyer in estate planning. Includes an introduction to wills, trusts, and estates, intestate succession, guardianship, will related documents, will drafting and executing, estate administration, probate related

legal action, trusts and administration, and fiduciary duties.

*Prerequisite(s): PAR 101.*

Information: Prerequisite may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Fall.

### PAR 206 Criminal Law and Procedures I

3 credit hours/ 3 periods (3 lec.)

Criminal law and trial processes from arrest through pre-trial procedures. Includes rules of criminal procedure, initial criminal law process, pretrial investigation and discovery, criminal and constitutional law cases, criminal statutes, and pretrial motion practice.

*Prerequisite(s): PAR 101.*

Information: Prerequisite may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Fall.

### PAR 207 Criminal Law and Procedures II

3 credit hours/ 3 periods (3 lec.)

Continuation of PAR 206. Includes rules of criminal procedure, trial rights of defendants, trial procedure, case preparation for trial, direct and cross examination, evidentiary objections, and motions for the close of evidence.

*Prerequisite(s): PAR 106 or concurrent enrollment, and PAR 206.*

Offered: Spring.

### PAR 208 Domestic Relations and Family Law

3 credit hours/ 3 periods (3 lec.)

Law and procedures related to family relationships and domestic matters. Includes basic principles of family law, marital contracts, legal issues in family law affecting children, initiating a divorce proceeding, contested proceedings, and assisting at a dissolution trial.

*Prerequisite(s): PAR 101.*

Information: Prerequisite may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Spring.

### PAR 209 Bankruptcy Procedures

3 credit hours/ 3 periods (3 lec.)

Application of legal procedures in bankruptcy. Includes jurisdiction, cast of characters and their roles in bankruptcy, client interview, evaluation of options, advising client, and drafting Chapter 7 liquidation, Chapter 13 adjustment of debts of individuals, Chapter 12 adjustment of debts of family farmer, Chapter 11 reorganization, and the paralegals' role.

*Prerequisite(s): PAR 101.*

Information: Prerequisite may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Fall.

### PAR 210 Administrative Law

4 credit hours/ 4 periods (4 lec.)

Concepts and procedures of administrative law for paralegals. Includes an overview of laws and regulations in employment, immigration, social security, and environmental law. Also includes practical applications in employment, immigration, social security, and environmental law.

*Prerequisite(s): PAR 101 and 103.*

Information: Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: May not be offered this year, check class schedule.

### PAR 210A Administrative Law: Employment

1 credit hour/ 1 period (1 lec.)

Concepts and procedures of employment law for paralegals. Includes an overview of employment law and regulations, and practical applications in employment law.

*Prerequisite(s): PAR 101 and 103.*

Information: PAR 210A, 210B, 210C, and 210D together constitute PAR 210. Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Summer.

### PAR 210B Administrative Law: Immigration

1 credit hour/ 1 period (1 lec.)

Concepts and procedures of immigration law for paralegals. Includes an overview of immigration law and regulations, and practical applications in immigration law.

*Prerequisite(s): PAR 101 and 103.*

Information: PAR 210A, 210B, 210C and 210D together constitute PAR 210. Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: May not be offered this year, check class schedule.

### PAR 210C Administrative Law: Social Security

1 credit hour/ 1 period (1 lec.)

Concepts and procedures of social security law for paralegals. Includes an overview of social security law and regulations, and practical applications in social security law.



Prerequisite(s): PAR 101 and 103.

Information: PAR 210A, 210B, 210C, and 210D together constitute PAR 210. Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.  
Offered: Summer.

### **PAR 210D Administrative Law: Environmental**

1 credit hour/ 1 period (1 lec.)

Concepts and procedures of environmental law. Includes an overview of environmental laws and regulations, and practical applications in environmental law.

Prerequisite(s): PAR 101 and 103.

Information: PAR 210A, 210B, 210C and 210D together constitute PAR 210. Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: May not be offered this year, check class schedule.

### **PAR 211 Legal Writing**

3 credit hours/ 3 periods (3 lec.)

Principles and techniques of legal writing. Includes writing style, editing and proofreading, legal analysis, legal brief types, and applications of legal writing for memoranda, litigation documents, and correspondence.

Prerequisite(s): PAR 103, 202 and WRT 102.

Offered: Fall, Spring.

### **PAR 212 Law Office Computerization**

3 credit hours/ 3 periods (3 lec.)

Application of computer software in a legal field. Includes computer hardware and software, word processing applications, database management systems, spreadsheet software, law office management, automated litigation support, telecommunications, and specialized legal software for the preparation of legal documents and document organization.

Prerequisite(s): CSA 101 and PAR 101.

Information: Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Spring.

### **PAR 213 Computer Assisted Legal Research**

3 credit hours/ 3 periods (3 lec.)

Computer assisted research systems. Includes historical development, full-text system; Westlaw, search techniques, and display elements, databases, special services, and Internet searching.

Prerequisite(s): PAR 103.

Information: Prerequisite may be waived with equivalent research experience; see a PAR advisor or course instructor.

Offered: Fall, Spring.

### **PAR 215 Corporate Law Procedures**

3 credit hours/ 3 periods (3 lec.)

Procedures and document drafting for the formation of business entities. Includes introduction to agency law, non-corporate entities, business corporations, corporation changes, forms of corporations, financing a corporation, changes in corporate structure, and the role of the paralegal in corporate law.

Prerequisite(s): PAR 101.

Information: Prerequisite may be waived if employed in a legal-related field; see a PAR advisor or course instructor.

Offered: Spring.

### **PAR 217 Real Estate Legal Procedures**

3 credit hours/ 3 periods (3 lec.)

Legal procedures and requirements in real estate transactions and litigation. Includes real estate principles and legal concepts, recording and constructive notice, and real property taxes. Also includes an analysis of real estate contracts/purchase agreements, escrows and closings, deeds, co-ownership, legal descriptions, leases, encumbrances, liens, and foreclosures.

Prerequisite(s): PAR 101.

Information: Employment in a legal-related field or an Arizona Real Estate license may be substituted for PAR 101; see a PAR advisor or course instructor. The Arizona Department of Real Estate will accept this course as satisfying 15 continuing education hours in the following categories (3 agency, 3 contract law, 3 fair housing, 3 real estate legal issues, and 3 general real estate).

Offered: Fall, Spring.

### **PAR 290 Paralegal Internship**

4 credit hours/ 16 periods (1 lec., 15 lab)

Volunteer paralegal field experience at an approved work site. Includes communications, positive work attitudes, ethics, progress review, law office systems, professional development, employment strategies, and final evaluation within a classroom seminar setting.

Prerequisite(s): PAR 104, 202 and WRT 102.

Information: Enrollment and placement contingent upon earned grade point average in PAR courses. Designed for students in their final semester of course work in the Paralegal Program. Six credit hours of PAR specialty electives from the following list must be taken - PAR 203, 204, 206, 207, 208, 209, 210, 212, 215, or 217. A minimum of 45 credit hours if completing the AAS Degree, or 27 credit hours in completing the certificate are required. Application and acceptance required.

Offered: Fall, Spring.

## **PHARMACY TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **PHT 170 Introduction to Pharmacy Technology**

2 credit hours/ 2 periods (2 lec.)

Overview of the role of pharmacy support personnel. Includes allied health professions, history and structure of pharmacy, ethics, legal aspects of pharmacy, pharmaceutical care delivery systems and drug distribution systems. Also includes medical terminology emphasizing common medical roots, prefixes and suffixes, pharmaceutical abbreviations and introduction to the concept of quality assurance and its procedures.

Offered: Fall, Spring.

### **PHT 171IN Pharmaceutical Calculations**

4 credit hours/ 6 periods (3 lec., 3 lab)

Mathematical computations needed in the practice of pharmacy technology. Includes fundamentals of mathematical calculations, units and measures for the calculation of drug dosages, and interpretation of the prescription or medication order. Also includes calculation of drug dosages, reducing and enlarging formulas, percentage preparations, dilution and concentration, isotonic solutions and electrolyte solutions.

Prerequisite(s): PHT 170 or concurrent enrollment and MAT 092.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

### **PHT 172 Drug Therapy I**

4 credit hours/ 4 periods (4 lec.)

Overview of the relationship between the central nervous system (CNA), the autonomic nervous system (ANS) and pharmaceutical therapy. Includes anatomy and physiology of the CNS, neurotransmission and disorders of the CNS, therapeutic applications of drugs affecting the CNS, and characteristics of drugs of the CNS. Also includes anatomy and physiology of the ANS, drug action on ANS neurotransmission, disorders treated with autonomic drugs, and types and characteristics of autonomic drugs.

Prerequisite(s): PHT 170 or concurrent enrollment.

Offered: Fall, Spring.

### **PHT 174 Pharmacy Operations**

2 credit hours/ 2 periods (2 lec.)

Technical aspects of drug distribution in both inpatient and outpatient settings. Includes basic pharmacy references, equipment and materials, non-sterile dosage forms, and inventory control. Also includes large and small scale compounding, packaging, and quality control.

Prerequisite(s): PHT 170 and 171 or concurrent enrollment.

Corequisite(s): PHT 174LB

Offered: Fall, Spring.

### **PHT 174LB Pharmacy Operations Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of PHT 174.

Corequisite(s): PHT 174

Offered: Fall, Spring.

### **PHT 178IN Computer Application for Pharmacy**

3 credit hours/ 5 periods (2 lec., 3 lab)

Basic concepts of computer operation. Includes the Internet, computer hardware and software, and professional pharmacy applications in retail and hospital pharmacy.

Prerequisite(s): PHT 170 or concurrent enrollment.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

### **PHT 180 Sterile Products**

3 credit hours/ 3 periods (3 lec.)

Application of aseptic techniques and use of the laminar flow hood in the preparation of sterile products. Includes history of sterile products and parenteral therapy, characteristics of sterile products, principles of fluid and electrolyte therapy, antiseptics, chemotherapy, TPN's and sterilization and sterile products calculations. Also includes introduction to IV labels and profile systems, aseptic techniques, total parenteral nutrition, incompatibilities, quality control, and specialized sterile products.

Prerequisite(s): PHT 171 or concurrent enrollment.

Corequisite(s): PHT 180LB

Offered: Fall, Spring.

### **PHT 180LB Sterile Products Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of PHT 180.

Corequisite(s): PHT 180

Offered: Fall, Spring.



### **PHT 181 Interprofessional Relations in Pharmacy**

3 credit hours/ 3 periods (3 lec.)

Overview of effective communications skills needed by the pharmacy technician to use interpersonally and between the pharmacist, the patient, and other health care professionals. Includes human relations development, personality inventory, and elements in communication in areas of non-verbal, interpersonal, barriers, listening, empathy and interviewing. Also includes building better patient understanding in special situations such as death and dying, ethnicity, conflict resolution, and ethical patient care.

Prerequisite(s): PHT 170 or concurrent enrollment.

Offered: Spring.

### **PHT 182 Drug Therapy II**

4 credit hours/ 4 periods (4 lec.)

The relationship between anatomy and physiology, disease states, and pharmaceutical therapy. Includes origins, dosage forms, indications, actions, routes of administration and side effects of both prescription and non-prescription drugs used in diseases of the cardiovascular, circulatory, renal, endocrine, respiratory, digestive, reproductive, and integumentary systems.

Prerequisite(s): PHT 170 or concurrent enrollment.

Offered: Spring.

### **PHT 187 Pharmacy Law and Ethics**

3 credit hours/ 3 periods (3 lec.)

Practical guide to pharmacy law and ethics for the pharmacy technician. Includes state and federal law, roles of the pharmacist and the pharmacy technician, and ethical practices for patients.

### **PHT 190LB Pharmacy Technician Internship**

4 credit hours/ 16 periods (16 lab)

On-site training in outpatient and inpatient pharmacy services under direct supervision of designated pharmacist.

Information: Completion of the core curriculum for the PHT certificate required before enrolling in this course.

Offered: Summer.

### **PHT 197 Clinical Seminar**

2 credit hours/ 2 periods (2 lec.)

Topics and discussions of importance to the pharmacy technician. Includes employment search preparation, research reports, and technical papers. Also includes a review of the Arizona Pharmacy Association Pharmacy Technician Certification Exam.

Corequisite(s): PHT 190LB

Offered: Summer.

## **PHILOSOPHY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **PHI 101 Introduction to Philosophy**

3 credit hours/ 3 periods (3 lec.)

Survey of Western Philosophy. Includes primary source readings in western philosophic areas: logic, epistemology, ethics, social/political philosophy, philosophy of religion, metaphysics, philosophy of science, and aesthetics.

Offered: Fall, Spring, Summer.

### **PHI 120 Introduction to Logic**

3 credit hours/ 3 periods (3 lec.)

Introduction to the main types of logical reasoning. Includes the nature of language, deductive logic, and inductive logic.

Offered: Fall, Spring, Summer.

### **PHI 122 God, Mind, and Matter**

3 credit hours/ 3 periods (3 lec.)

Introduction to the metaphysics and epistemology of the cognitive and material domains of Western philosophy. Includes philosophic method, distinctions, ancient philosophical ideas about God, mind, and matter, medieval ideas, modern philosophers' ideas, and contemporary philosophical discussions.

Offered: Fall, Spring.

### **PHI 123 Philosophical Foundations of Science**

3 credit hours/ 3 periods (3 lec.)

Introduction to Western philosophical foundations of science. Includes philosophical and scientific methods, classical, medieval, modern and contemporary science and mathematics, and philosophical problems raised by discovery and change.

Offered: Spring.

### **PHI 130 Introductory Studies in Ethics and Social Philosophy**

3 credit hours/ 3 periods (3 lec.)

Introduction to the study of the principles of morality and standards of conduct from a western philosophical perspective. Includes philosophical method, foundations of moral philosophy, ethical-value judgments and human nature, theories of social morality and justice, and emotions and faith.

Offered: Fall, Spring, Summer.

### **PHI 140 Philosophy of Religion**

3 credit hours/ 3 periods (3 lec.)

Introduction to Western philosophical methods as applied to religion. Includes philosophical method, nature and meaning of religion and God, classical arguments, faith and reason, theodicy, mysticism, and the impact of religion on ethics, psychology, and law.

Information: This is not a world religions class. Same as REL 140.

Offered: Fall, Spring, Summer.

## **PHYSICS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **PHY 061 Problem Solving for Physics 121**

1 credit hour/ 1 period (1 lec.)

Strategies and techniques used to solve problems encountered in an algebra based, introductory to Physics course. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

Corequisite(s): PHY 121.

Offered: May not be offered this year, check class schedule.

### **PHY 062 Problem Solving for Physics 122**

1 credit hour/ 1 period (1 lec.)

Strategies and techniques used to solve problems encountered in a second semester, algebra based, introductory Physics course. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

Corequisite(s): PHY 122.

Offered: May not be offered this year, check class schedule.

### **PHY 063 Problem Solving for Physics 210**

1 credit hour/ 1 period (1 lec.)

Strategies and techniques used to solve problems encountered in an calculus-based introductory mechanics course. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

Corequisite(s): PHY 210.

Offered: May not be offered this year, check class schedule.

### **PHY 064 Problem Solving for Physics 216**

1 credit hour/ 1 period (1 lec.)

Strategies and techniques used to solve problems encountered in a calculus-based introductory course in electricity and magnetism. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

Corequisite(s): PHY 216.

Offered: May not be offered this year, check class schedule.

### **PHY 065 Problem Solving for Physics 221**

1 credit hour/ 1 period (1 lec.)

Strategies and techniques used to solve problems encountered in a calculus-based introductory course in waves, heat and fluid. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

Corequisite(s): PHY 221.

Offered: May not be offered this year, check class schedule.

### **PHY 066 Problem Solving for Physics 230**

1 credit hour/ 1 period (1 lec.)

Strategies and techniques used to solve problems encountered in a calculus-based introduction to modern physics. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

Corequisite(s): PHY 230.

Offered: May not be offered this year, check class schedule.

### **PHY 080 Introduction to Conceptual Physics**

1 credit hour/ 1 period (1 lec.)

Selected topics in conceptual physics. Includes fundamentals of conceptual physics, one dimensional kinematics, Newton's laws of motion (force), work and energy, light rays and reflection, and electric circuits.

Offered: May not be offered this year, check class schedule.

**PHY 101 Technical Physics I**

2 credit hours/ 2 periods (2 lec.)

Concepts of physics related to technician occupations. Includes state of matter, forces in water and other liquids, forces in air and other gases, forces in work and machines, concepts of motion, heat energy, psychometrics, electrical principles, and electromagnetic spectrum.

Prerequisite(s): MAT 086Corequisite(s): PHY 101LB

Offered: May not be offered this year, check class schedule.

**PHY 101LB Technical Physics I Lab**

1 credit hour/ 2 periods (2 lab)

This is the Lab portion of PHY 101.

Corequisite(s): PHY 101

Offered: May not be offered this year, check class schedule.

**PHY 121 Introductory Physics I**

4 credit hours/ 4 periods (4 lec.)

Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes mechanics and heat.

Corequisite(s): PHY 121LB

Information: High School algebra is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**PHY 121IN Introductory Physics I**

5 credit hours/ 7 periods (4 lec., 3 lab)

Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes mechanics and heat.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously. High School algebra is required before enrolling in this course.

Offered: Fall, Spring.

**PHY 121LB Introductory Physics I Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of PHY 121.

Corequisite(s): PHY 121

Offered: Fall, Spring, Summer.

**PHY 122 Introductory Physics II**

4 credit hours/ 4 periods (4 lec.)

Continuation of PHY 121. Includes waves, electricity, magnetism, optics, relativity, and modern physics.

Prerequisite(s): PHY 121.Corequisite(s): PHY 122LB

Offered: Fall, Spring, Summer.

**PHY 122IN Introductory Physics II**

5 credit hours/ 7 periods (4 lec., 3 lab)

Continuation of PHY 121. Includes waves, electricity, magnetism, optics, relativity, and modern physics.

Prerequisite(s): PHY 121.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**PHY 122LB Introductory Physics II Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of PHY 122.

Corequisite(s): PHY 122

Offered: Fall, Spring, Summer.

**PHY 195 Introduction to Research in Physics**

4 credit hours/ 4 periods (4 lec.)

Introduction to the methods of research in physics. Includes scientific laboratory procedures, experimental design, scientific writing, scientific ethics, and current research in working laboratories.

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

**PHY 196 Independent Studies in Physics**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent studies and projects in physics and allied science fields. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring.

**PHY 210 Introductory Mechanics**

4 credit hours/ 4 periods (4 lec.)

Calculus-based introduction to mechanics for physics, engineering, and mathematics majors. Includes kinematics, dynamics, and conservation of energy, linear, and angular momentum.

Prerequisite(s): MAT 220. Corequisite(s): PHY 210LB

Information: High school physics is required before enrolling in this course.

Offered: Fall, Spring.

**PHY 210IN Introductory Mechanics**

5 credit hours/ 7 periods (4 lec., 3 lab)

Calculus-based introduction to mechanics for physics, engineering, and mathematics majors. Includes kinematics, dynamics, and conservation of energy, linear, and angular momentum.

Prerequisite(s): MAT 220.

Information: High school physics is required before enrolling in this course. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**PHY 210LB Introductory Mechanics Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of PHY 210.

Corequisite(s): PHY 210

Offered: Fall, Spring.

**PHY 216 Introductory Electricity and Magnetism**

4 credit hours/ 4 periods (4 lec.)

Calculus-based introduction to electricity and magnetism for physics, mathematics, and engineering majors. Includes electric and magnetic field theory, Gauss's Law, potential theory, capacitance, circuit theory, Ampere's Law, Faraday's Law, and Maxwell's equations.

Prerequisite(s): PHY 210 and MAT 231.Corequisite(s): PHY 216LB

Offered: Fall, Spring.

**PHY 216IN Introductory Electricity and Magnetism**

5 credit hours/ 7 periods (4 lec., 3 lab)

Calculus-based introduction to electricity and magnetism for physics, mathematics, and engineering majors. Includes electric and magnetic field theory, Gauss's Law, potential theory, capacitance, circuit theory, Ampere's Law, Faraday's Law, and Maxwell's equations.

Prerequisite(s): PHY 210 and MAT 231.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall.

**PHY 216LB Introductory Electricity and Magnetism Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of PHY 216.

Corequisite(s): PHY 216

Offered: Fall, Spring.

**PHY 221 Introduction to Waves and Heat**

3 credit hours/ 3 periods (3 lec.)

Calculus-based introduction to waves and heat for physics, mathematics, and engineering majors. Includes fluid statics and dynamics, heat and thermodynamics, simple harmonic motion, wave theory, physical and geometric optics.

Prerequisite(s): PHY 210 and MAT 231.Corequisite(s): PHY 221LB

Offered: Fall.

**PHY 221LB Introduction to Waves and Heat Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of PHY 221.

Corequisite(s): PHY 221

Offered: Fall.

**PHY 230 Introduction to Modern Physics**

3 credit hours/ 3 periods (3 lec.)

Calculus-based introduction to modern physics from the theory of relativity to the origins of quantum mechanics. Includes the classical theory of relativity, inertial reference frames, the special theory of relativity, and relativistic kinematics and dynamics. Also includes the quantization of energy, wave particle duality, early quantum theory, atomic physics and the hydrogen atom, nuclear, and elementary particle physics.

Prerequisite(s): PHY 210 and 216, or PHY 221 and MAT 231.

Offered: Spring.

**PHY 295LB Independent Research in Physics**

1-4 credit hours/ 3-12 periods (3-12 lab)

Experience in scientific laboratory research. Specific content to be determined by student and instructor.

Information: One semester of physics and consent of instructor is required before enrolling in this course. May be taken three times for a maximum of twelve credit hours.

Offered: Fall, Spring, Summer.

## POLITICAL SCIENCE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### POS 100 Introduction to Politics

3 credit hours/ 3 periods (3 lec.)

Issues, principles, and trends in political science. Includes politics and political science, political philosophy and ideology, comparative politics, American national and state and local government, and international relations.

Offered: Fall, Spring, Summer.

### POS 196 Independent Study in Political Science

2-4 credit hours/ 2-4 periods (2-4 lec.)

Independent readings or special projects in political science. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring.

### POS 201 American National Government and Politics

3 credit hours/ 3 periods (3 lec.)

Basic concepts and substance of American politics. Includes methods of political analysis, cultural environment of American politics, impact of class, gender, and immigration, Constitution, civil liberties, and civil rights, and public opinion and fundamental values. Also includes political institutions, institutions of government, economic and social policy-making, and American foreign policy and interdependence.

Information: The combination of both POS 201 and 231 satisfies the requirement for teacher certification, as does POS 210.

Offered: Fall, Spring, Summer.

### POS 202 Introduction to International Relations

3 credit hours/ 3 periods (3 lec.)

Examination of contemporary international relations. Includes approaches to the study of international relations, international systems, actors in the international systems, foreign policies, and major forms of interactions.

Offered: Fall, Spring.

### POS 203 Introduction to Political Ideas

3 credit hours/ 3 periods (3 lec.)

Introductory survey of western political philosophy. Includes political philosophy as a discipline, and introduction to the ideas of key political thinkers from ancient through medieval, early modern, late modern, and contemporary periods.

Offered: Fall.

### POS 204 Introduction to Comparative Politics

3 credit hours/ 3 periods (3 lec.)

Basic concepts and substance of comparing political systems. Includes methods of comparative political analysis, politics the socio-cultural environment, public authority, and political power, individuals, cultural diversity, and state, political institutions, governmental institutions, and political change.

Offered: Fall, Spring.

### POS 210 National and State Constitutions

3 credit hours/ 3 periods (3 lec.)

Principles and procedures of national and state constitutions. Includes principles of American and Arizona Constitutionalism, historical and legal environments of the United States and Arizona constitutions, structures, powers, and responsibilities of United States government, structures of Arizona government, civil liberties and civil rights in the United States, and constitutional change.

Information: POS 210 satisfies the requirement for teacher certification as does the combination of both POS 201 and 231.

Offered: Fall, Spring, Summer.

### POS 214 Arizona Constitution

1 credit hour/ 1 period (1 lec.)

Fundamental principles of the Arizona Constitution of 1910. Includes importance of state constitutions, legislative branch and direct democracy, Arizona plural executive, judicial branch, and local governments in Arizona.

Information: This course fulfills the Arizona teacher certification requirement for state constitutions.

Offered: Fall, Spring, Summer.

### POS 231 American State and Local Governments and Politics

3 credit hours/ 3 periods (3 lec.)

Basic concepts and substance of American state and local politics and government. Includes methods of political analysis, federalism/intergovernmental relations, cultural environment of state and local politics, impact of class, gender, age and occupation, public opinion and fundamental values. Also includes interest articulation and aggregation, institutions and processes of state and local governments, tribal governments, and state and local policy-making.

Information: The combination of both POS 201 and 231 satisfies the requirements for teacher certification, as does POS 210.

Offered: Fall, Spring.

### POS 240 Understanding Terrorism

3 credit hours/ 3 periods (3 lec.)

Analysis of terrorism as an international phenomenon. Includes terrorism definitions and perspective, classifications of terrorism, cultural and geographical issues, responses by governments to terrorism, terrorism's future impact on the international and domestic scene, and current government reports on terrorism.

Offered: Fall, Spring.

### POS 290 Political Science Internship

3 credit hours/ 15 periods (15 lab)

Supervised internship in a local governmental office. Includes placement with elected officials or candidates for public office, governmental agencies, and city, county or state departments. Also includes substantive assignments involving development and application of analytical, research and writing skills.

Prerequisite(s): WRT 101.

Information: Completion of six credit hours of Political Science are required before enrolling in this course. May be taken three times for a maximum of nine credit hours.

Offered: Fall, Spring, Summer.

## PORTUGUESE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### POR 053 Social and Cultural Portuguese: Music

2 credit hours/ 2 periods (2 lec.)

Listening and discussing Brazilian songs from the earlier decades to the present. Includes origins of Brazilian music, Brazilian rhythms, instruments, and major composers. Also includes contributions brought by the Portuguese, the Africans, and the indigenous population of Brazil.

Information: Prior knowledge of Portuguese is welcome, but not required.

Offered: May not be offered this year, check class schedule.

### POR 101 Elementary Portuguese I

4 credit hours/ 4 periods (4 lec.)

Basic linguistic skills of the Portuguese language. Includes article, gender, numerals, present indicative, irregular plurals, idiomatic expression, commands, the preterite, and cultural traditions. Also includes proficiency in speaking, reading, writing, and understanding Portuguese.

Offered: Fall.

### POR 102 Elementary Portuguese II

4 credit hours/ 4 periods (4 lec.)

Continuation of POR 101. Includes preterite indicative, imperfect indicative, simple past tenses of indicative, pronominal verbs, present participle in progressive constructions, subjunctive, and the use of the present, descriptive adjective, present perfect indicative, conditional verbs, present subjunctive, and cultural traditions. Also includes increased proficiency in listening, speaking, reading, and writing Portuguese.

Prerequisite(s): POR 101.

Offered: Spring.

### POR 201 Intermediate Portuguese I

4 credit hours/ 4 periods (4 lec.)

Continuation of POR 102. Includes selection of grammar structures, literary, political, and social vocabulary, selection of literary works by period, and cultural and stylistic differences.

Prerequisite(s): POR 102.

Offered: May not be offered this year, check class schedule.

### POR 202 Intermediate Portuguese II

4 credit hours/ 4 periods (4 lec.)

Continuation of POR 201. Includes additional selection of grammar structures, additional literary, political, and social readings, additional selection of literacy works by period, and additional cultural and stylistic differences.

Prerequisite(s): POR 201.

Offered: May not be offered this year, check class schedule.



## PROCESS TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### PRO 106 Painting and Coating of Metals

3 credit hours/ 4 periods (2 lec., 2 lab)

Fundamentals of painting and coating of metals. Includes paint composition, properties, types, surface preparation, spraying processes, powder coating, film defects, testing, removing paint, automated painting, masking, and environmental regulations.

Offered: Fall, Spring.

## PRODUCTION INVENTORY MANAGEMENT

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### PIM 150 Physical Distribution Management

3 credit hours/ 3 periods (3 lec.)

In-depth study of the logistical function. Includes customer service standards, inventory control concepts, transportation methods, order processing systems, warehousing location analysis, industrial packaging, and materials handling.

Information: Same as MKT 150.

Offered: Fall.

### PIM 210 Production Control

3 credit hours/ 3 periods (3 lec.)

Principles of production activity control and capacity management. Includes scheduling and controlling the shop floor, capacity requirements planning, resource requirements planning and closed loop Material Requirements Planning (MRP).

Information: Candidates for APICS Production Activity Control certification examination will find this course valuable.

Offered: Spring.

## PROFESSIONAL FLIGHT TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### PFT 101 Stage One: Ground School

4 credit hours/ 4 periods (4 lec.)

Knowledge and procedures for the Federal Aviation Administration (FAA) private pilot ground school certificate. Includes aerodynamics, instruments and systems, weight and balance, cross-country planning, Airman's Informational Manual (AIM), Notices to Airmen (NOTAMS), aircraft/facility directory, radio navigation, weather, safe and efficient operation of airplanes, and final examination.

Offered: Fall.

### PFT 122 Stage Two: Meteorology

1 credit hour/ 1 period (1 lec.)

Continuation of PFT 101. Includes an in-depth study of weather elements, weather hazards, aviation weather reports, and forecasts.

Recommendation: Consent of instructor before enrolling in this course.

Offered: Fall.

### PFT 130 Stage Three: Commercial Ground School

5 credit hours/ 5 periods (5 lec.)

Preparatory course for Federal Aviation Administration (FAA) Commercial Pilot Certification. Includes the information required to pass the FAA written test for the Commercial Pilot Certificate.

Recommendation: Consent of instructor before enrolling in this course.

Offered: Fall.

### PFT 204 Stage Four: Commercial Pilot (Instrument) Ground School

4 credit hours/ 4 periods (4 lec.)

Knowledge and procedures for the Federal Aviation Administration (FAA) instrument pilot certificate. Includes government publications, radio aids, air traffic control procedures, Federal Aviation Regulations (FAR), cross country operations and procedures, weather theory, aviation weather data, flight instruments and systems, altitude instrument flight, flight physiology, and final examination.

Prerequisite(s): PFT 101.

Recommendation: Consent of instructor before enrolling in this course.

Offered: Fall.

### PFT 230 Flight Instructor: Fundamentals of Instruction

3 credit hours/ 3 periods (3 lec.)

Study of the basic principles of teaching and learning as it applies to the requirements to obtain the Federal Aviation Administration's (FAA) Flight

Instructor rating. Includes the fundamentals of conveying aeronautical knowledge and skills to beginning and advanced learners in preparation for FAA examinations.

Prerequisite(s): PFT 130 and 204.

Recommendation: Consent of instructor before enrolling in this course.

Offered: Spring.

### PFT 231 Flight Instructor: Airplane Ground School

5 credit hours/ 5 periods (5 lec.)

Theory and procedures associated with the ground school requirements to attain Federal Aviation Administration Flight Instructor certification. Includes aerodynamic principles, engine limitations, pilotage, communications, and federal regulations.

Recommendation: Possession of an Airplane Flight Instructor certificate and instrument rating before enrolling in this course.

Offered: Spring.

### PFT 250 Flight Instructor: Instrument Airplane Ground School

3 credit hours/ 3 periods (3 lec.)

Theory and procedures associated with the ground school requirements to attain Federal Aviation Administration Flight Instructor - Instrument Airplane certification. Includes the items required by the FAA to obtain an Instrument Flight Rating addition to a Flight Instructor Certificate and a requirement to teach all areas required by the FAA to obtain an Instrument Flight Instructor Airplane Rating addition to a Flight Instructor Certificate.

Recommendation: Possession of an Airplane Flight Instructor certificate and instrument rating is required before enrolling in this course.

Offered: Spring.

## PSYCHOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### PSY 100 Psychology I

6 credit hours/ 6 periods (6 lec.)

PSY 100A and 100B constitute PSY 100.

Offered: May not be offered this year, check class schedule.

### PSY 100A Psychology I

3 credit hours/ 3 periods (3 lec.)

Survey of psychology. Includes historical perspectives, theoretical systems and methodology, development, intelligence, thinking and language, personality, psychopathology, psychotherapy, and social psychology.

Information: PSY 100A and 100B together constitute the content of PSY 101.

Offered: Fall, Spring.

### PSY 100B Psychology II

3 credit hours/ 3 periods (3 lec.)

Survey of psychology. Includes historical perspectives, theoretical systems and methodology, structure and functions of the nervous and endocrine systems, perception, learning, memory, motivation and emotion, and stress and health.

Information: PSY 100A and 100B together constitute the content of PSY 101.

Offered: Fall, Spring.

### PSY 101 Introduction to Psychology

4 credit hours/ 4 periods (4 lec.)

Survey of psychology including history, perspectives, and methods; structure and functions of the nervous and endocrine systems; development; perception; learning; memory; intelligence, thinking and language; motivation and emotion; personality; psychopathology; psychotherapy; stress and health; and social cognition and behavior.

Information: Content is a combination of elements of PSY 100A and 100B.

Offered: Fall, Spring, Summer.

### PSY 132 Psychology and Culture

3 credit hours/ 3 periods (3 lec.)

Human diversity in behavior and culture using examples from a variety of contexts and nations. Includes cross-cultural approach, understanding culture, culture, self and personality, cross-cultural research methods, enculturation, socialization, and development, cultural influences on organization and the world of work, culture and intergroup relations, culture and social behavior, culture and basic psychological processes, culture and gender, culture and health, diversity of human emotion, culture and language, culture and communication, and cultural diversity.

Offered: Fall.

### PSY 200 Industrial, Organizational, and Business Psychology

3 credit hours/ 3 periods (3 lec.)

Introduction to the application of psychological theory and practice to the work place. Includes applying psychology, employment laws and policies, training and development, leadership, organizational structures, consumer behavior, ethics, stress and its effects on work, and designing effective work environments.

Offered: Fall.



**PSY 210 Introduction to Biopsychology**

3 credit hours/ 3 periods (3 lec.)

Survey of the basic principles of the nervous system function. Includes research methods, theoretical perspectives, anatomy and functions of the nervous system, and brain function and behavior. Also includes such topics as the biological basis of sleep and rhythms, stress and health, aggression and violence, and mental disorders.

Prerequisite(s): PSY 100B or 101.

Offered: May not be offered this year, check class schedule.

**PSY 214 Abnormal Psychology**

3 credit hours/ 3 periods (3 lec.)

Overview of the paradigms, diagnosis, disorders, and treatment approaches in the field of abnormal psychology. Includes: history, models, anxiety and mood disorders, mind and body disorders, psychosis and cognitive functioning disorders, and life span disorders.

Recommendation: Completion of PSY 100A or 101 or consent of instructor before enrolling in this course.

Offered: Fall, Spring, Summer.

**PSY 215 Human Sexuality**

3 credit hours/ 3 periods (3 lec.)

Examination of human sexual experience throughout the life cycle, viewed from sociological and psychological perspectives. Includes psychological, sociological, and cultural legacy of sexuality, biological foundations of sexuality, varieties of sexual behaviors, sexuality and the life cycle, sexual problems, and social issues.

Information: Same as SOC 215.

Offered: Fall, Spring, Summer.

**PSY 216 Psychology of Gender**

3 credit hours/ 3 periods (3 lec.)

Biological and social explanations of gender development and behaviors. Includes research methods used to study gender, biological sexual differentiation, differential socialization and gender stereotyping, gender differences, limitations of traditional gender roles, cross-cultural gender issues, and changing gender roles.

Recommendation: Completion of PSY 100A or 101 before enrolling in this course.

Offered: Fall, Spring, Summer.

**PSY 218 Health Psychology**

3 credit hours/ 3 periods (3 lec.)

Overview of health psychology in relationship to cultural diversity in the United States, and awareness of the universal aspect of humanity. Includes mind-body relationships, behavior risk factors, and psychosocial aspects of specific disorders. Also includes health psychology, social, economic, and political dimensions of relationships between and among ethnic and gender groups.

Recommendation: Completion of PSY 100A or PSY 101 or consent of instructor before enrolling in this course.

Offered: Fall, Spring.

**PSY 220 The Psychology of Death and Loss**

3 credit hours/ 3 periods (3 lec.)

Adjustment to death and loss. Includes thinking about death, meaning of death, death system, dying, hospice, and end-of-life issues. Also includes suicide, violent death, euthanasia, bereavement, funeral process, near death experiences, and death education and counseling.

Recommendation: Completion of PSY 100A or 101 before enrolling in this course.

Offered: Fall.

**PSY 224 Investigating Paranormal Psychology**

3 credit hours/ 3 periods (3 lec.)

Survey of experiments and case studies in paranormal phenomena. Includes extrasensory perception, psychokinesis, and reports of near-death experiences. Also includes research methodologies and potential applications.

Recommendation: Completion of PSY 100A and 100B or 101 or consent of instructor before enrolling in this course.

Offered: Fall.

**PSY 230 Psychological Measurements and Statistics**

3 credit hours/ 3 periods (3 lec.)

Measurement, quantitative description and statistical inference as applied to psychological variables. Includes scientific research and statistics, descriptive statistics, inferential statistics, correlation and linear regression, and non-parametric tests.

Information: Completion of PSY 101 and MAT 122, or consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**PSY 250 Introduction to Social Psychology**

3 credit hours/ 3 periods (3 lec.)

Introduction to major theories and research findings of social psychology. Includes research focus and methods, social influence on individual behavior, effects of culture and gender on social behavior, self-perception and attitudes, and social perceptions and international relations.

Recommendation: Completion of PSY 100A or 101 before enrolling in this course.

Offered: Fall, Spring.

**PSY 254 Psychology of Love and Compassion**

3 credit hours/ 3 periods (3 lec.)

Introduction to theory and research on the psychology of love and caring. Includes applications to mental, physical and spiritual health. Also includes gender behaviors and expectations in loving relationships.

Offered: Fall, Spring.

**PSY 265 Normal Personality**

3 credit hours/ 3 periods (3 lec.)

Psychological functioning and coping behaviors for normal personality development. Includes personal learning and growth, stages of personality development, role development, work and leisure, wellness, and managing stress. Also includes love, sexuality, relationships, loneliness and solitude, death and loss, and meaning and values.

Recommendation: Completion of PSY 100A or 101 before enrolling in this course.

Offered: Fall, Spring.

**PSY 270 Meditation**

3 credit hours/ 3 periods (3 lec.)

Theoretical principles and selected traditions of meditation self-awareness. Includes principles and techniques of meditation, meditation traditions, literature of meditation, meditation arts, and psychology and physiology of meditation.

Information: Same as HUM 270.

Offered: Fall, Spring.

**PSY 271 Sport Psychology**

3 credit hours/ 3 periods (3 lec.)

Examination of psychological factors that influence sport performance and coaching behaviors and the psychological effects that sport and exercise involvement have on the participant. Includes an introduction to sport psychology and sport history, psychological principles of behavioral development and control, social psychological dimensions of sport and exercise, personality assessment, the study of special athletic populations, coaching roles and behavior, and exercise psychology.

Recommendation: Completion of PSY 100A or 101 before enrolling in this course.

Offered: Spring.

**PSY 273 Psychology of Excellence**

3 credit hours/ 3 periods (3 lec.)

Psychological theories, research and intervention strategies for enhancing performance in diverse life and work settings. Includes time management, principles of self-regulation, enhancing memory and work habits, setting goals and dealing with stress. Also includes cognitive theories and approaches to self control, problem solving and decision making, mental imagery, attentional focus, effective communication, and conflict resolution.

Recommendation: Completion of PSY 100A or 101 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**PSY 289 Research Methods**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to scientific methodologies used in psychological research. Includes experience in using a range of psychological research methods for students.

Information: Completion of PSY 230 with a grade of C or better, or consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

**PSY 290 Social Psychology Practicum**

1-6 credit hours/ 5-30 periods (5-30 lab)

Familiarization with specific areas of social psychology. Includes pertinent research, directed observation, and personal participation in relevant experimental or natural settings.

Prerequisite(s): PSY 100A or 101.

Information: Consult instructor for alternative prerequisites.

Offered: May not be offered this year, check class schedule.

**PSY 296 Individual Studies in Psychology**

1-6 credit hours/ 1-6 periods (1-6 lec.)

Exploration of special interest areas. Content to be determined by student and facilitator-instructor.

Prerequisite(s): PSY 100A or 101.

Information: Prerequisites may be waived with consent of instructor. May be taken two times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.

## PUBLIC ADMINISTRATION

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### PAD 105 Introduction to Public Administration

3 credit hours/ 3 periods (3 lec.)

Basic concepts and substance of American public administration. Includes a definition of public administration, paradigms of public administration, public organizations in the United States, public management techniques, implementation and evaluation, and ethics and public administration.

Offered: Fall.

### PAD 221 Health, Human Services, and Public Management

3 credit hours/ 3 periods (3 lec.)

Survey of significant issues in health care, aging, social security, public planning and decision-making. Includes American health services, American human services, public management in America, policy-making and implementation, data use and interpretation in public management, and practical cases in health and human services.

Offered: May not be offered this year, check class schedule.

## PUBLIC SAFETY COMMUNICATIONS

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### PSC 199 Introduction to Co-op: Public Safety Communications

1 credit hour/ 1 period (1 lec.)

See Cooperative Education section for description.

Corequisite(s): PSC 199WK

Information: Consent of instructor required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### PSC 199WK Co-op Work: Public Safety Communications

1-8 credit hours/ 5-40 periods (5-40 lab)

See Cooperative Education section for description.

Corequisite(s): PSC 199

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

## QUALITY CONTROL

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### QCT 101 Quality Control I

3 credit hours/ 3 periods (3 lec.)

Introduction to the concepts of quality control. Includes basic statistics, use of control charts for attributes and variables, linear correlation, and assigned experiments. Also includes specialized concepts of reliability and maintainability.

Offered: Fall.

### QCT 102 Quality Control II

3 credit hours/ 3 periods (3 lec.)

Introduction to the concepts of quality control management. Includes quality department organization, quality systems and procedures, procurement quality control, standards and calibration, inspection principles and practices, internal quality audits and the economics of quality control.

Offered: Spring.

## RADIOLOGIC TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### RAD 170 Medical Imaging Fundamentals

2 credit hours/ 2 periods (2 lec.)

Principles of radiographic imaging. Includes orientation, production of diagnostic radiation, image formation, ethics and professionalism, patient care and management, and radiographic positioning of the abdomen and chest.

Corequisite(s): RAD 170LB

Information: Admission to program is required before enrolling. See an advisor.

Offered: Summer.

### RAD 170LB Medical Imaging Fundamentals Lab

1 credit hour/ 3 periods (3 lab)

This is the Lab for RAD 170.

Corequisite(s): RAD 170

Offered: Summer.

### RAD 171 Radiographic Positioning I

3 credit hours/ 3 periods (3 lec.)

Overview of radiographic procedures. Includes standard terms general and positioning considerations for routine and special radiographic procedures. Also includes radiographic positions of the abdomen, chest, upper extremities, shoulder girdle, and lower extremities.

Prerequisite(s): RAD 170.

Corequisite(s): RAD 171LB

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### RAD 171LB Radiographic Positioning I Lab

1.5 credit hours/ 4.5 periods (4.5 lab)

This is the Lab for RAD 171.

Corequisite(s): RAD 171

Offered: Fall.

### RAD 172 Medical Imaging Technology I

3 credit hours/ 3 periods (3 lec.)

Introduction to radiographic image production and evaluation. Includes radiographic imaging orientation, exposure, protection, image quality, and film processing. Includes formulating exposure techniques, quality assurance, and sensitometry.

Prerequisite(s): RAD 170.

Corequisite(s): RAD 172LB

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### RAD 172LB Medical Imaging Technology I Lab

.5 credit hours/ 1.5 periods (1.5 lab)

This is the Lab for RAD 172.

Corequisite(s): RAD 172

Offered: Fall.

### RAD 173LC Clinical Education I

6 credit hours/ 24 periods (24 lab)

Application of general radiographic procedures in a clinical education center under the supervision of a certified radiographer. Includes hospital and department orientation, radiographic equipment, supplies, exam protocols, routine radiographic examinations, emergency, and portable equipment.

Prerequisite(s): RAD 170.

Information: Consent of program coordinator is required before enrolling in this course.

Offered: Fall.

### RAD 174 Radiographic Positioning II

3 credit hours/ 3 periods (3 lec.)

Continuation of RAD 171. Basic radiographic positioning and procedures. Includes pelvis, hips, SI joints, bony thorax, and vertebral column. Also includes pediatric radiography, trauma/surgical mobile radiography, and related osseous system pathology.

Prerequisite(s): RAD 171, 172 and 173.

Corequisite(s): RAD 174LB

Offered: Spring.

### RAD 174LB Radiographic Position II Lab

1.5 credit hours/ 4.5 periods (4.5 lab)

This is the Lab for RAD 174.

Corequisite(s): RAD 174

Offered: Spring.

### RAD 175 Medical Imaging Technology II

3 credit hours/ 3 periods (3 lec.)

Continuation of RAD 172. Principles of x-ray production. Includes tomography, matter and the atom, ionizing radiation, basic electricity, and magnetism and electromagnetism. Also includes voltage and current, x-ray generators, diagnostic radiographic systems, and x-ray tubes.

Prerequisite(s): RAD 170, 171, 172 and 173.

Corequisite(s): RAD 175LB

Offered: Spring.

### RAD 175LB Medical Imaging Technology II Lab

.5 credit hours/ 1.5 periods (1.5 lab)

This is the Lab for RAD 175.

Corequisite(s): RAD 175

Offered: Spring.

**RAD 176LC Clinical Education II**

6 credit hours/ 24 periods (24 lab)

Continuation of RAD 173. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes routine and fluoroscopic equipment and procedures, contrast media policies and protocols, I.V. administration, routine and special examinations, and surgical and portable procedures.

Offered: Spring.

**RAD 177LC Clinical Education III**

7 credit hours/ 21 periods (21 lab)

Continuation of RAD 176LB. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes diagnostic and fluoroscopic equipment and procedures, contrast media policies and protocols, I.V. administration, routine and special examinations, and surgical and portable procedures.

Prerequisite(s): RAD 174, 175, and 176.

Offered: Spring.

**RAD 181 Radiographic Positioning III**

3 credit hours/ 3 periods (3 lec.)

Continuation of RAD 174. Includes radiographic positioning and fluoroscopic procedures of the urinary system, pharmacodynamics of radiopaque contrast media, intravenous drug administration technique (venipuncture), the digestive system, and the biliary system.

Prerequisite(s): RAD 174 and 177.Corequisite(s): RAD 181LC

Offered: Fall.

**RAD 181LB Radiographic Positioning III Lab**

1.5 credit hours/ 4.5 periods (4.5 lab)

This is the Lab for RAD 181.

Corequisite(s): RAD 181

Offered: Fall.

**RAD 182 Medical Imaging Technology III**

3 credit hours/ 3 periods (3 lec.)

Specialized and advanced medical imaging systems. Includes Nuclear Medicine technology, Ultrasound technology, radiation therapy, image intensification, mobile radiography special, and digital medical imaging. Also includes computed tomographic scanning, Magnetic Resonance Imaging, and digital imaging.

Prerequisite(s): RAD 170, 172, 173, 175, 176 and 177.Corequisite(s): RAD 182LC

Offered: Fall.

**RAD 182LB Medical Imaging Technology III Lab**

.5 credit hours/ 1.5 periods (1.5 lab)

Continuation of RAD 175. Specialized procedures and advanced medical imaging systems. Includes tomography, image intensification, mobile radiography, special imaging procedures, radiation therapy, and other imaging modalities.

Prerequisite(s): RAD 175, 176 and 177.Corequisite(s): RAD 182

Offered: Fall.

**RAD 183LC Clinical Education IV**

6 credit hours/ 24 periods (24 lab)

Continuation of RAD 177. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes special radiographic procedures, utilization of mobile radiographic procedures, routine positioning for pediatric examinations, and routine and special positioning for trauma and emergency procedures.

Prerequisite(s): RAD 177.Corequisite(s): RAD 181, RAD 182

Offered: Fall.

**RAD 184 Radiographic Positioning IV**

3 credit hours/ 3 periods (3 lec.)

Continuation of RAD 181. Includes patient care and management, aseptic technique/infection control, medical emergencies, routine and special positioning of the skull, and radiation biology.

Prerequisite(s): RAD 181, 182 and 183LB.Corequisite(s): RAD 185, RAD 186LC

Offered: Spring.

**RAD 184LB Radiographic Positioning IV Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of RAD 184.

Corequisite(s): RAD 184

Offered: Spring.

**RAD 185 Clinical Seminar**

1 credit hour/ 1 period (1 lec.)

Capstone course—includes radiographic procedures, image production and evaluation, patient care/education, equipment operation, quality control, and radiation protection.

Prerequisite(s): RAD 181, 182, 183LBCorequisite(s): RAD 184, RAD 186LC

Offered: Spring.

**RAD 186LC Clinical Education V**

6 credit hours/ 24 periods (24 lab)

Continuation of RAD 183. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes tomographic procedures, advanced medical imaging procedures, optional imaging suite rotations, and routine and special positions of the skull.

Prerequisite(s): RAD 181, 182, 183LC.Corequisite(s): RAD 184, RAD 185

Offered: Spring.

**RAD 210 Sectional Anatomy of the Head and Neck**

1 credit hour/ 1 period (1 lec.)

Three dimensional anatomy presented in sagittal, transverse, and coronal planes of the head and neck. Includes structure identification and anatomic relationships of the bones, organs, muscles, nerves, and cavities.

Information: American Registry of Radiologic Technologists certification or consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**RAD 211 Sectional Anatomy of the Abdomen**

1 credit hour/ 1 period (1 lec.)

Three dimensional anatomy presented in sagittal, transverse, and coronal planes of the abdomen. Includes structure identification and anatomic relationships of the bones, organs, muscles, nerves, and cavities.

Information: American Registry of Radiologic Technologists certification or consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**RAD 212 Sectional Anatomy of the Thorax**

1 credit hour/ 1 period (1 lec.)

Three-dimensional anatomy presented in sagittal, and transverse sections of the thorax. Includes structure identification and anatomic relationships of the bones, organs, and cavities.

Information: American Registry of Radiologic Technologists certification or consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**RAD 213 Sectional Anatomy of the Vertebral Column and Spinal Cord**

1 credit hour/ 1 period (1 lec.)

Three dimensional anatomy presented in transverse, sagittal, and coronal planes of the vertebral column and spinal cord. Includes structure identification and anatomic relationships of vertebrae and spinal cord including discs, ligaments, muscles, nerves.

Information: Requires American Registry of Radiologic Technologists certification or permission of instructor.

Offered: May not be offered this year, check class schedule.

**RAD 214 Sectional Anatomy Pathology**

1 credit hour/ 1 period (1 lec.)

Discussion of pathophysiology and the radiographic signs of various diseases as seen on CT and MR case studies of the human body. Includes pathologic considerations for the head/neck, thorax, abdomen, pelvis, spine, and joints.

Offered: May not be offered this year, check class schedule.

**READING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**REA 068 Techniques of Vocabulary**

2 credit hours/ 2 periods (2 lec.)

Introduction to basic strategies for vocabulary development. Includes use of context clues, word parts, the dictionary, word cards, imaging techniques and vocabulary resources.

Information: May be taken two times for a maximum of four credit hours.

Offered: Spring.

**REA 071 Reading Fundamentals**

4 credit hours/ 4 periods (4 lec.)

Development of fundamental reading strategies. Includes extensive development of word analysis, vocabulary, information literacy, and reading strategies necessary to assure successful comprehension at the literal and interpretive levels.

Information: Designed for persons who need an intensive review of the basic reading strategies.

Offered: Fall, Spring.



### REA 075 Spelling

2 credit hours/ 2 periods (2 lec.)

Development of strategies for improving spelling. Includes basics of the English spelling system and spelling rules.

Offered: Fall, Spring.

### REA 081 Reading Improvement I

4 credit hours/ 4 periods (4 lec.)

Improvement of basic reading strategies. Includes development of word analysis, vocabulary, information literacy, and reading strategies necessary to assure successful comprehension at the literal level and interpretive levels.

*Prerequisite(s):* REA 071 with a C or better or required score on Reading assessment test.

Information: Designed for persons who need to improve strategies in order to increase their success in college. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring, Summer.

### REA 091 Reading Improvement II

4 credit hours/ 4 periods (4 lec.)

Development of college reading strategies. Includes vocabulary comprehension, study strategies, metacognition, information literacy, and community of readers.

*Prerequisite(s):* REA 081 with a C or better required score on the Reading assessment test.

Information: May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring, Summer.

### REA 112 Critical Reading

4 credit hours/ 4 periods (4 lec.)

Development of college reading strategies. Includes comprehension strategies at the college level, critical reading and thinking, information literacy, vocabulary development, and advanced study strategies.

*Prerequisite(s):* Has both a Reading and Writing prerequisite. Reading: REA 091 with a C or better or required score on Reading assessment test.

Writing: WRT 070 with a C or better or placement into WRT 100 or higher.

Information: Student may be admitted with instructor recommendation.

Offered: Fall, Spring, Summer.

### REA 125 Speed Reading

2 credit hours/ 2 periods (2 lec.)

Improvement of reading rate. Includes reading and study habits, visual perception, rate and flexibility, and comprehension.

*Prerequisite(s):* REA 112 or required score on the Reading assessment test.

Offered: May not be offered this year, check class schedule.

## REAL ESTATE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### RLS 083 Environmental Issues for Realtors

2 credit hours/ 2 periods (2 lec.)

Technical and legal issues concerning the sale of commercial, industrial, and residential properties that may involve "environmental damage." Includes detailed Environmental Phase I Site Assessments.

Information: Not for ENV majors. Same as ENV 083.

Offered: May not be offered this year, check class schedule.

### RLS 101 Principles of Real Estate I/License Preparation

3 credit hours/ 3 periods (3 lec.)

Principles of real estate and the associated rules and regulations. Includes real estate profession and ethics, property characteristics, listing agreements, ownership of real property, legal descriptions, property development, property insurance, property valuation and the appraisal process, contracts and contract law, financing, real estate math, acquisition and transfer of title, and licensing.

*Corequisite(s):* RLS 102

Information: The Arizona Department of Real Estate accepts this course as satisfying 45 hours of the required 90 hours of pre-licensing educational requirements for salesperson. RLS 101 and 102 together constitute RLS 105.

Offered: Fall, Summer.

### RLS 102 Principles of Real Estate II/ License Preparation

3 credit hours/ 3 periods (3 lec.)

Continuation of RLS 101. Includes continuation of contracts, principles of agency, estates in real property, government restrictions on property, liens, easements, and other encumbrances, property management, activities of Arizona licensees, escrow and settlement procedures, real estate math, Arizona Residential Landlord and Tenant Act, and Arizona real estate law.

*Prerequisite(s):* RLS 101 or concurrent enrollment.

Information: The Arizona Department of Real Estate accepts this course as satisfying 45 hours of the required 90 hours of pre-licensing educational requirements for salespersons. RLS 101 and 102 together constitute RLS 105.

### RLS 105 Principles of Real Estate/License Preparation

6 credit hours/ 6 periods (6 lec.)

Principles of real estate and the associated rules and regulations. Includes real estate profession and ethics, property characteristics, listing agreements, ownership of real property, legal descriptions, property development, property insurance, property valuation and the appraisal process, contracts and contract law, financing, real estate math, acquisition and transfer of title, licensing, continuation of contracts, principles of agency, estates in real property, government restrictions on property, liens, easements, and other encumbrances, property management, activities of Arizona licensees, escrow and settlement procedures, Arizona Residential Landlord and Tenant Act, and Arizona real estate law.

Information: RLS 101 and 102 together constitute RLS 105. The Arizona Department of Real Estate accepts this course as satisfying the required 90 hours of pre-licensing educational requirements for salespersons.

Offered: Fall, Spring, Summer.

### RLS 106 Trends in Real Estate Practice

1 credit hour/ 1 period (1 lec.)

Overview of recent developments in the real estate profession. Includes contract writing, computing, and ethical practices.

Information: This course is intended for people interested in the real estate field and is designed to meet the six hours of contract writing required by the Arizona Department of Real Estate for new salespersons.

Offered: Summer.

### RLS 202 Real Estate Appraisals

3 credit hours/ 3 periods (3 lec.)

Basic principles and practical application of real estate appraisals. Includes real property, markets, fee simple and partial interests, data, neighborhoods and districts, building, highest and best use, cost approach, sales comparison approach, income capitalization approach, and appraisal report.

Offered: Fall.

### RLS 205 Real Estate Finance

3 credit hours/ 3 periods (3 lec.)

Overview of real estate finance from the viewpoint of the home mortgage loan officer. Includes factors affecting the mortgage market, sources of mortgage funds and lending criteria, secondary mortgage market, Federal Housing Administration, Veterans Administration, other government programs, types of mortgages available, legal instruments and procedures, mathematical calculations, loan processing and closing, default and disclosure, other financing, real estate taxation, and careers in real estate finance.

Offered: Spring.

### RLS 252 Advanced Appraisal Techniques

3 credit hours/ 3 periods (3 lec.)

Analysis of data on income-producing properties. Includes rationale for income capitalization approach, income expectancy, relationship of income and value, analysis of market evidence, direct and yield capitalization, mathematics of finance, mortgage and equity contributions, mortgage-equity capitalization, discounted cash flow analysis, and critique of the internal rate of return.

Information: RLS 202 or consent of instructor is required before enrolling.

Offered: Spring.

## RELIGION

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### REL 119 Judaism, Christianity, and Islam

3 credit hours/ 3 periods (3 lec.)

Introduction to the three major western religions. Includes nature of religious belief, development of Judaism, teaching of Judaism, festivals and rituals of Judaism, development of Christianity, teaching of Christianity, Christian festivals and rituals, development of Islam, teachings of Islam, Islamic festivals and rituals, and common heritage, emphasis, and variations of Judaism, Christianity, Islam.

Offered: Fall, Spring.

### REL 130 Asian Religions

3 credit hours/ 3 periods (3 lec.)

Religions of India and the Far East. Includes Hinduism, Buddhism, and East Asian religions.

Offered: Fall, Spring.

### REL 140 Philosophy of Religion

3 credit hours/ 3 periods (3 lec.)

Introduction to Western philosophical methods as applied to religion. Includes philosophical method, nature and meaning of religion and God, classical arguments, faith and reason, theodicy, mysticism, and the impact of religion on ethics, psychology, and law.

Information: This is not a world religions class. Same as PHI 140.

Offered: Fall, Spring, Summer.



**REL 200 Religion in Popular Culture**

3 credit hours/ 3 periods (3 lec.)

Exploration of the relationship between religion and contemporary society. Includes representation of religion in popular culture, function of religion as popular culture, and conflicts between religion and popular culture. Also includes a focus on popular media (movies, television, music, news, advertising, and recreation).

Offered: Fall, Spring, Summer.

**REL 220 Old Testament**

3 credit hours/ 3 periods (3 lec.)

Major books of the Old Testament. Includes literary forms, historical context, moral implications of the literature, and religious significance.

Offered: Fall, Spring.

**REL 221 New Testament**

3 credit hours/ 3 periods (3 lec.)

Major books of the New Testament. Includes literary forms, historical context, moral implications of the literature, and religious significance.

Offered: Fall, Spring.

**REL 233 Early Christianity**

3 credit hours/ 3 periods (3 lec.)

History and selected writings of the first three hundred years of Christianity. Includes the world of early Christianity, writings of major Church Fathers, early Christian literature, and Christianity in the early Fourth Century.

Offered: May not be offered this year, check class schedule.

**REL 234 Islam**

3 credit hours/ 3 periods (3 lec.)

History and literature of Islam. Includes basic themes of the Qur'an, life of the Prophet Mohammed, basic tenets and practices of Islam, origin and development of Sufism, historical/political development of Islam from Muhammad to the present.

Offered: Fall, Spring.

**REL 250 Religion and Culture in the Southwest**

3 credit hours/ 3 periods (3 lec.)

Introduction to the relationship and various forms of religion and culture in the Southwest. Includes native traditions, European influences, Southwestern Catholicism, other religious influences in the Southwestern United States, and contemporary religious traditions in the Southwest.

Offered: Fall.

**REL 273 Judaism**

3 credit hours/ 3 periods (3 lec.)

Introduction to the Jewish religion. Includes the central themes of Judaism, Days of Awe, Shabbat, Pesach, Shavuot, Lots, Hanukkah, cycle of Jewish life, and rituals, myths, and communities.

Offered: May not be offered this year, check class schedule.

**REL 275 Native American Worldviews**

3 credit hours/ 3 periods (3 lec.)

Native American religions surveying concepts of reality, morality, ethics, and the environment. Includes concept of worldview, traditional Native American religious systems, Native American religions in a changing world, and future of Native American religious thought.

Offered: May not be offered this year, check class schedule.

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## RESERVE OFFICERS TRAINING CORPS — ROTC — AIR FORCE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MLA 100 Foundations of Air Force I**

2 credit hours/ 2 periods (2 lec.)

First Year General Military Course (GMC). Survey of the doctrine, mission, and organization of the United States Air Force (USAF); strategic offensive and defensive forces; United States general purpose and aerospace support forces. Information: United States Air Force Reserve Officers Training Corps (AFROTC) Cadets must attend a Leadership Lab. Course offered in cooperation with the University of Arizona.

Offered: Fall.

**MLA 101 Foundation of the Air Force II**

2 credit hours/ 2 periods (2 lec.)

Second Year General Military Concepts Survey of the doctrine, mission, and organization of the United States Air Force (USAF); U.S. strategic offensive and defensive forces; United States, general purpose and aerospace support forces. Information: United States Air Force Reserve Officers Training Corps (AFROTC) Cadets must attend a Leadership Lab. Course offered in cooperation with the University of Arizona.

Offered: Spring.

**MLA 200 Airpower History I**

2 credit hours/ 2 periods (2 lec.)

Second Year General Military Concepts Survey of the development of aviation from the advent of the air age to the present, with emphasis on military aviation and its relationship with political and economic aspects of historical world situations. Information: United States Air Force Reserve Officer Training Corps (AFROTC) Cadets must attend a Leadership lab. Course offered in cooperation with the University of Arizona.

Offered: Fall.

**MLA 201 Airpower History II**

2 credit hours/ 2 periods (2 lec.)

Second Year General Military Course Survey of the development of aviation from the advent of the air age to the present, with emphasis on military aviation and its relationship with political and economic aspects of historical world situations. Information: United States Air Force Officers Training Corps (AFROTC) Cadets must attend a Leadership Lab. Course offered in cooperation with the University of Arizona.

Offered: Spring.

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## RESERVE OFFICERS TRAINING CORPS — ROTC — ARMY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**MLS 100 Introduction to Military Skills I**

3 credit hours/ 3 periods (3 lec.)

Organization of the Army. Principles and techniques of applied leadership, customs, traditions and military courtesy; basic marksmanship; first aid; land navigation; small-unit tactics; desert survival; and self-defense.

Information: Field trip to Ft. Huachuca, Az. Course offered in cooperation with the University of Arizona.

Offered: Fall.

**MLS 101 Introduction to Military Skills II**

3 credit hours/ 3 periods (3 lec.)

Organization of the Army; principles and techniques of applied leadership; customs, traditions and military courtesy; basic marksmanship; first aid; land navigation; small-unit tactics; desert survival; and self defense.

Information: Required field trip to Ft. Huachuca.

Offered: Spring.

**MLS 200 Army Leadership Dynamics I**

3 credit hours/ 3 periods (3 lec.)

Development of leadership training for the individual in small unit levels, introduction into military tactic planning skills, practical experiences in writing and briefing military operation orders and land navigation.

Information: Required field trip to Ft. Huachuca, Arizona.

Offered: Fall.

**MLS 201 Army Leadership Dynamics II**

3 credit hours/ 3 periods (3 lec.)

Development of leadership training for the individual in small unit levels. Introduction into military tactical planning skills, practical experiences in writing and briefing military operation orders and land navigation.

Information: Required field trip to Ft. Huachuca, AZ.

Offered: Spring.

**MLS 296 Independent Study in Military Science**

3 credit hours/ 3 periods (2 lec., 1 lab)

Advanced level study in leadership, values and ethics, personal development, officership, tactics and techniques, and effective writing. Includes topics that contribute to the development of professional and proficient cadets and officers. *Recommendation: See an instructor before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

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## RESERVE OFFICERS TRAINING CORPS — ROTC — NAVY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**NSP 100 Naval Laboratory I**

1 credit hour/ 2 periods (2 lab)

Various topics such as drill and ceremonies, physical fitness, cruise preparation, sail training, safety awareness, personal finances, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice.

Information: Acceptance into the Navy ROTC program at the University of Arizona is required before enrolling in this course.  
Offered: Fall, Spring.

### NSP 101 Introduction to Naval Science

3 credit hours/ 3 periods (3 lec.)

Introduction to naval profession and to concepts of seapower, with emphasis on mission, organization, and warfare components of the Navy and Marine Corps, Naval courtesy and customs, military justice, shipboard damage control and safety. Information: Course offered in cooperation with the University of Arizona.  
Offered: Fall.

### NSP 102 Naval Ship Systems I

3 credit hours/ 3 periods (3 lec.)

Ship characteristics and types including ship design, hydrodynamic forces, stability compartmentation, propulsion, electrical and auxiliary systems, interior communications, ship control and damage control; basic concepts of the theory and design of steam, gas turbine, nuclear propulsion. Information: Course offered in cooperation with the University of Arizona.  
Offered: Fall.

### NSP 103 Naval Laboratory I (Marine Option)

2 credit hours/ 3 periods (1 lec., 2 lab)

Overview of drill and physical readiness requirements for Marines. Includes topics, such as drill and ceremonies, physical fitness, Officer Candidate School (OCS) preparation, Land Navigation training, safety awareness, general military subjects, and applied field exercises in Marine Corps small unit tactics. Information: Acceptance into the Navy ROTC program (Marine Option) at the University of Arizona is required before enrolling in this course or permission of instructor. May be taken 11 times for a maximum of 22 credits.  
Offered: Spring.

### NSP 200 Naval Laboratory II

2 credit hours/ 3 periods (1 lec., 2 lab)

Various topics such as drill and ceremonies, physical fitness, cruise preparation, sail training, safety awareness, personal finances, and applied exercises in naval ship system, navigation, naval operations, naval administration, and military justice. Information: Offered in cooperation with the University of Arizona.  
Offered: May not be offered this year, check class schedule.

### NSP 201 Naval Ship Systems II: Weapons

3 credit hours/ 3 periods (3 lec.)

Theory and employment of weapons systems, processes of detection, evaluation, threat analysis, selection, delivery and guidance. Physical aspects of radar and underwater sound. Information: Course offered in cooperation with the University of Arizona.  
Offered: Spring.

### NSP 202 Sea Power and Maritime Affairs

3 credit hours/ 3 periods (3 lec.)

United States Naval history from the American Revolution to the present. Discussion of the theories of Mahan, political issues of merchant marine commerce, and a comparison of U.S. and Soviet naval strategies; terrorist aggressor force. Information: Course offered in cooperation with the University of Arizona.  
Offered: Spring.

### NSP 205 Leadership and Management

3 credit hours/ 3 periods (3 lec.)

Organizational behavior and management in the context of the naval organization. A survey of management functions of planning, organizing, and controlling; introduction to individual and group behavior in organizations; motivation and leadership. Information: Course offered in cooperation with the University of Arizona.  
Offered: May not be offered this year, check class schedule.

## RESPIRATORY THERAPY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### RTH 110 Introduction to Respiratory Care

4 credit hours/ 4 periods (4 lec.)

Overview of respiratory care. Includes respiratory care and the health care system, computer applications, terms, symbols, and units of measure, patient safety, communication, and record keeping, principles of infection control, ethical and legal implications of practice, and basic life support.

Corequisite(s): RTH 112, RTH 121, RTH 121LB, RTH 246

Information: See a faculty advisor prior to enrollment. This course is open only to those students who have been admitted to the RTH program.  
Offered: Fall.

### RTH 112 Respiratory Physiology

4 credit hours/ 4 periods (4 lec.)

Study of the cardiopulmonary system and associated structures. Includes the anatomy of the respiratory system, ventilation and diffusion of pulmonary gases, the circulatory system, oxygen and carbon dioxide transport, control of ventilation, and renal failure and its effects on the cardiopulmonary system.

Prerequisite(s): BIO 160.

Corequisite(s): RTH 110, RTH 121, RTH 121LB, RTH 246

Information: This class is open only to those students who have been admitted to the RTH program.  
Offered: Fall.

### RTH 121 Basic Therapeutics

4 credit hours/ 4 periods (4 lec.)

Basic respiratory care therapeutics, equipment function, clinical indications and contraindications. Includes medical gas therapy, oxygen delivery devices, humidity and aerosol therapy, hyperinflation therapy, chest physical therapy, and basic airway management.

Corequisite(s): RTH 110, RTH 112, RTH 121LB, RTH 246

Information: This course is open only to those students who have been admitted to the RTH program.  
Offered: Fall.

### RTH 121LB Basic Therapeutics Lab

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of RTH 121.

Corequisite(s): RTH 110, RTH 112, RTH 121, RTH 246

Offered: Fall.

### RTH 123 Basic Assessment and Monitoring

3 credit hours/ 3 periods (3 lec.)

Study of patient assessment and monitoring of the cardiopulmonary impaired patient. Includes bedside respiratory assessment, clinical laboratory studies assessment, oxygenation and ventilation, pulmonary function measurements, clinical application of chest radiography, and basic interpretation of electrocardiogram tracing.

Prerequisite(s): RTH 110, 112, 121, and 246.

Corequisite(s): RTH 123LB, RTH 124, RTH 125LC, RTH 162

Information: This course is open only to those students who have been admitted to the RTH program.  
Offered: Spring.

### RTH 123LB Basic Assessment and Monitoring Lab

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of RTH 123.

Corequisite(s): RTH 123, RTH 124, RTH 125LC, RTH 162

Offered: Spring.

### RTH 124 Pharmacology for Respiratory Care

3 credit hours/ 3 periods (3 lec.)

Principles of pharmacology and drug receptor theory as it relates to patients with cardiopulmonary disease. Includes general principles of pharmacology, drug dose calculations, central and peripheral nervous system, bronchodilators, drugs used to control airway mucus and edema, and drugs used in the management of ventilator patients and patients with cardiorespiratory disorders.

Prerequisite(s): RTH 110, 112, 121, and 246.

Corequisite(s): RTH 123, RTH 123LB, RTH 125LC, RTH 162

Information: This course is open only to those students who have been admitted to the RTH program.  
Offered: Spring.

### RTH 125LC Clinical Procedures I

1 credit hour/ 4 periods (4 lab)

Clinical application of all prerequisite and concurrent respiratory care course work. Includes hospital/clinical site orientations, review of hospital respiratory department administration, departmental policies, procedures, reporting system, and medical record data entry, utilization of the medical record to retrieve information, therapist observation, medical gas therapy, and patient assessment and monitoring. Also includes aerosol therapy administration, hyperinflation therapy, evaluation of the effectiveness of therapy, and patient care plans.

Prerequisite(s): RTH 110, 112, 121 and 246.

Corequisite(s): RTH 123, RTH 123LB, RTH 124, RTH 162

Information: This course is open only to those students who have been admitted to the RTH program.  
Offered: Spring.

**RTH 135LC Clinical Procedures II**

4 credit hours/ 16 periods (16 lab)

Continuation of RTH 125. Includes infection control procedures, medical asepsis, equipment disinfection, and processing, aerosol and humidity therapy, medical gas therapy, IPPB therapy, incentive spirometry, and chest physiotherapy. Also includes airway management and care, basic cardiopulmonary resuscitation, arterial blood gases, and case study presentation.

Prerequisite(s): RTH 123, 124, 125LC and 162.

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Summer.

**RTH 162 Principles of Mechanical Ventilation**

2 credit hours/ 2 periods (2 lec.)

Introduction to the concepts of mechanical ventilation for the adult patient. Includes establishing the need for mechanical ventilation, non-invasive versus invasive mechanical ventilation, the physiologic basis of ventilatory support, and physical principles of positive pressure ventilation.

Prerequisite(s): RTH 110, 112, 121 and 246.Corequisite(s): RTH 123, RTH 123LB, RTH 124, RTH 125LC

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Spring.

**RTH 241 Critical Care Therapeutics**

2 credit hours/ 2 periods (2 lec.)

Study of critical care principles and procedures in the adult patient. Includes airway management, selected adult mechanical ventilators and troubleshooting, care of the mechanically ventilated patient, and home mechanical ventilation.

Prerequisite(s): RTH 135.Corequisite(s): RTH 241LB, RTH 243, RTH 243LB, RTH 245LC

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Fall.

**RTH 241LB Critical Care Therapeutics Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of RTH 241.

Corequisite(s): RTH 241, RTH 243, RTH 243LB, RTH 245LC

Offered: Fall.

**RTH 243 Advanced Assessment and Monitoring**

3 credit hours/ 3 periods (3 lec.)

Study of the assessment of the critical respiratory patient. Includes physical assessment of the critically ill patient, respiratory monitoring in the intensive care unit, cardiac output assessment, invasive hemodynamic monitoring, assessment of sleep-related breathing disorders, nutritional assessment and the respiratory system, advanced cardiac arrhythmia interpretation, and bronchoscopy.

Prerequisite(s): RTH 135.Corequisite(s): RTH 241, RTH 241LB, RTH 243LB, RTH 245LC

Information: This course is only open to those students who have been admitted to the RTH program.

Offered: Fall.

**RTH 243LB Advanced Assessment and Monitoring Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of RTH 243.

Corequisite(s): RTH 241, RTH 241LB, RTH 243, RTH 245LC

Offered: Fall.

**RTH 245LC Clinical Procedures III**

4 credit hours/ 16 periods (16 lab)

Continuation of RTH 135. Includes clinical assessment of the critical care patient, advanced airway management, advanced respiratory assessment monitoring, adult mechanical ventilation, care decisions in mechanically ventilated adult patients. Also includes hemodynamic assessment of the critically ill patient, observation in various respiratory care delivery environments, interaction with medical director, and case study presentation.

Prerequisite(s): RTH 135.Corequisite(s): RTH 241, RTH 241LB, RTH 243, RTH 243LB

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Fall.

**RTH 246 Cardiorespiratory Disorders I**

3 credit hours/ 3 periods (3 lec.)

Study of commonly encountered respiratory disorders in the adult patient. Includes infectious pulmonary diseases, obstructive pulmonary disease, traumatic injuries of the lungs and chest, pulmonary vascular diseases and disorders of the pleura and chest wall, various important cardiopulmonary topics.

Corequisite(s): RTH 110, RTH 112, RTH 121, RTH 121LB

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Fall.

**RTH 251 Specialty Therapeutics**

4 credit hours/ 4 periods (4 lec.)

Study of respiratory therapies used in specialized environments. Includes development and care of the fetus, care of the neonatal and pediatric patient, management of ventilation and oxygenation in the neonatal and pediatric patient, transport, home care, and care of the parents, advanced cardiac life support (ACLS), pulmonary rehabilitation, and advanced cardiorespiratory care therapies.

Prerequisite(s): RTH 241, 243 and 245.Corequisite(s): RTH 251LB, RTH 255LC, RTH 256, RTH 257LB

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Spring.

**RTH 251LB Specialty Therapeutics Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of RTH 251.

Corequisite(s): RTH 251, RTH 255LC, RTH 256, RTH 257LB

Offered: Spring.

**RTH 255LC Clinical Procedures IV**

4 credit hours/ 16 periods (16 lab)

Continuation of RTH 245. Includes clinical assessment, advanced airway management and advanced respiratory assessment monitoring of the neonatal/pediatric patient, mechanical ventilation and care decisions for the adult and neonatal/pediatric patient, observation and participation in various respiratory care delivery environments, case study presentation preparation.

Prerequisite(s): RTH 241, 243 and 245.Corequisite(s): RTH 251, RTH 256, RTH 257LB

Offered: Spring.

**RTH 256 Cardiorespiratory Disorders II**

3 credit hours/ 3 periods (3 lec.)

Continuation of RTH 246. Includes neuromuscular disorders affecting ventilation, neoplastic diseases of the lung and environmental lung diseases. Also includes assessment of the developing fetus and the neonate, cardiovascular disorders and congenital anomalies of the newborn, cardiopulmonary disorders of the newborn, and pediatric cardiopulmonary disorders.

Prerequisite(s): RTH 241, 243, 245, 246.Corequisite(s): RTH 251, RTH 251LB, RTH 255LC, RTH 257LB

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Spring.

**RTH 257LB Clinical Applications and Professional Development**

1 credit hour/ 4 periods (4 lab)

Completion of clinical application projects. Includes preparation of resumes, review for and completion of computerized self-assessment exams for credentialing, and interaction with licensure and national credentialing organizations. Also includes participation in a respiratory related service learning project and professional development through shared reporting.

Prerequisite(s): RTH 241, 243 and 245.Corequisite(s): RTH 251, RTH 251LB, RTH 255LC, RTH 256

Information: This course is open only to those students who have been admitted to the RTH program.

Offered: Spring.

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## RESTAURANT, CULINARY AND FOOD SERVICE MANAGEMENT

**RCF 115 Meat Cutting for the Foodservice Industry**

2 credit hours/ 2 periods (2 lec.)

Butchering of meat for quantity food preparation. Includes history, purchasing guidelines, government regulations, cuts and usage for pork, lamb/veal, and beef.

Offered: May not be offered this year, check class schedule.

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## RUSSIAN

**RUS 101 Elementary Russian I**

4 credit hours/ 4 periods (4 lec.)

Introduction to the Russian language. Includes Cyrillic alphabet, greetings, gender, readings, communications, and activities.

Offered: Fall, Spring.



**RUS 102 Elementary Russian II**

4 credit hours/ 4 periods (4 lec.)

Continuation of RUS 101. Includes grammar and vocabulary, housing and furniture, family and professions, shopping, money and measurements, and biographies.

Prerequisite(s): RUS 101.

Offered: Spring.

**RUS 201 Intermediate Russian I**

4 credit hours/ 4 periods (4 lec.)

Continuation of RUS 102. Includes grammar review, plural case endings, prepositional/accusative cases, weather and climate, and reflexive verbs.

Prerequisite(s): RUS 102.

Information: Prerequisites may be waived with two years of high school Russian.

Offered: Fall.

**RUS 202 Intermediate Russian II**

4 credit hours/ 4 periods (4 lec.)

Continuation of RUS 201. Includes grammar review, sports terms, health care terms, postal system, traveling in Russia, and etiquette.

Prerequisite(s): RUS 201.

Offered: Spring.

**RUS 205 Popular Russian Authors - 1700's to the Present**

3 credit hours/ 3 periods (3 lec.)

Overview of Russian literature, history, and culture. Includes sentimentalism, romanticism, intermediate period writer, Acemism—the age of the poets, Stalin's purges, and contemporary prose.

Recommendation: Completion of WRT 101 before enrolling in this course.

Information: Course taught in English.

Offered: Fall.

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**SAFETY\***

\*Not open to the public. See Other Educational Programs chapter for more information.

**SAF 103 School Preparedness**

1 credit hour/ 1 period (1 lec.)

Basic concepts of preparedness using the Metropolitan Emergency Response Systems within the school environment. Includes an overview of terrorism, risk assessment, communications, and preparedness.

Prerequisite(s): Consent of instructor.

Offered: May not be offered this year, check class schedule.

**SAF 105 Community Preparedness**

.25 credit hours/ .25 periods (.25 lec.)

Basic concepts of preparedness using the Metropolitan Emergency Response Systems within the community environment. Includes threat assessment, immunization plans, self-treatment, and community organizations.

Prerequisite(s): Consent of instructor.

Offered: May not be offered this year, check class schedule.

**SAF 107 Industry Preparedness**

1 credit hour/ 1 period (1 lec.)

Basic concepts of preparedness using the Metropolitan Emergency Response Systems within the business and industry environment. Includes motivations, risk assessment, threat assessment, unsecured areas, and communications.

Prerequisite(s): Consent of instructor.

Offered: May not be offered this year, check class schedule.

**SAF 109 Basic Emergency Response Using a Defibrillator**

.25 credit hours/ .25 periods (.25 lec.)

Principles and techniques of basic emergency cardiac care for community citizens. Includes techniques involved in utilizing an Automated External Defibrillator (AED), as well as airway care and cardiopulmonary resuscitation (CPR).

Information: The course is designed to train laypersons and other interested individuals. Course meets American Heart Association guidelines for Heartsaver AED and CPR certification.

Offered: May not be offered this year, check class schedule.

**SAF 200 Safety Supervisor**

2 credit hours/ 2 periods (2 lec.)

Theoretical and practical training in the use of regulatory standards and other safety reference materials needed to comply with Federal, State and City health and safety regulations and policies. Includes an exploration of safety and health hazards in the work environment, conducting work site inspections, researching various health and safety standards, developing a risk management plan. Also includes an overview of a supervisor's legal and ethical responsibilities to the community in regard to safety and health matters.

Information: Consent if agency partner is required prior to registration.

Offered: May not be offered this year, check class schedule.

**SAF 202 Emergency Response to Terrorism - Basic Concepts**

.5-1 credit hour/ .5-1 periods (.5-1 lec.)

Overview of the special needs of responders to incidents which may have been caused by terrorist actions. Includes recognizing terrorism, time/distance/shielding concepts, self-protection, scene control, tactics, and an overview of incident command.

Offered: May not be offered this year, check class schedule.

**SAF 230 Mass Decontamination**

.5 credit hours/ .5 periods (.5 lec.)

Introduction to the forms of decontamination (DECON). Includes types of decontaminates, contamination avoidance, control zones, and detection devices.

Prerequisite(s): Consent of instructor. Offered May not be offered this year, check class schedule.**SAF 240 Explosive Devices**

.5 credit hours/ .5 periods (.5 lec.)

Overview of explosives and incendiary weapons during a terrorist incident. Includes detection, injuries, triage, incendiary devices, and chemical agents.

Prerequisite(s): Consent of instructor.

Offered: May not be offered this year, check class schedule.

**SAF 250 Medical Response to Weapons of Mass Destruction**

.25 credit hours/ .25 periods (.25 lec.)

Advanced information on the medical response to a Weapons of Mass Destruction (WMD) event. Includes basic concepts of emergency response to terrorism, an overview of Metropolitan Emergency Response System (MERS), Mass Decontamination, and START Triage (Simple Triage and Rapid Treatment).

Prerequisite(s): Consent of instructor. Offered May not be offered this year, check class schedule.**SAF 251 Infection Control**

.25 credit hours/ .25 periods (.25 lec.)

Introduction to the skills necessary to the practice of infection control after a natural disaster of Weapons of Mass Destruction incident. Includes basic microbiology, immunology, immunization, treatment, and investigation.

Prerequisite(s): Consent of instructor.

Offered: May not be offered this year, check class schedule.

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**SAFETY EDUCATION FOR LIFT-TRUCK****SED 110 Sit-Down Lift Truck Operations**

2.5 credit hours/ 5 periods (1 lec., 4 lab)

Principles and procedures for sit-down lift truck operations. Includes pre-operational safety check, starting, driving, and safety techniques.

Information: A current Arizona driver license is required before enrolling in this course.

Offered: Spring.

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**SCIENCE FOR TEACHERS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**SCT 280 Process of Science for Elementary Educators I**

3 credit hours/ 3 periods (3 lec.)

Interdisciplinary, hands-on, inquiry-based science for elementary educators. Includes the nature of science, integrating science in the elementary school classroom, technology and society, matter and energy, the universe, structure of life and organism in their environment.

Prerequisite(s): BIO 105, MAT 142, and one of the following- AST 101/101LB or 101IN, 102/102LB or 102IN, GLG 102IN, CHM 121/121LB or 121IN, 130/130LB or 130IN, 151/151LB or 151IN, GEO 101, 102, PHY 115/115LB, 121/121LB, or 121IN.

Information: Designed for elementary education majors. Information: Does not meet the AGEC requirements for science.

Offered: Fall, Summer.

**SCT 281 Process of Science for Elementary Educators II**

3 credit hours/ 3 periods (3 lec.)

Continuation of SCT 280. Includes integrating additional science in the elementary classroom, human health, human society, applying science and technology, patterns and relationships, historical perspectives, critical thinking processes.

Prerequisite(s): SCT 280.

Information: Designed for elementary education majors. Does not meet AGEC requirements for science.

Offered: Spring, Summer.



## SIGN LANGUAGE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### SLG 050 Conversational Sign Language I

3 credit hours/ 3 periods (3 lec.)

Introduction to conversational sign language skills. Includes basic sign vocabulary, d/Deaf culture, and an overview of communications systems.  
Offered: Fall, Spring.

### SLG 055 Conversational Sign Language II

3 credit hours/ 3 periods (3 lec.)

Continuation of SLG 050. Includes intermediate sign vocabulary, d/Deaf culture, and a focus on developing intermediate skills in sign language.

Information: Completion of SLG 050 or consent of instructor is required before enrolling in this course.

Offered: Fall, Spring.

### SLG 101 American Sign Language I

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to American Sign Language (ASL). Includes parameters, syntax, sentence types, facial expression and body language, pronominalization, nouns and verbs, modals, sign space, time line and time modulations, classifiers/SASSes, pluralizations, and deaf culture. Also includes how people hear, fingerspelling numbers, lexicalized fingerspelling, conceptual accuracy, sign modulation, conversational regulators, basic compounds and contractions, and existence of regional dialects/signs and language variations.

Information: Students will be required to perform an additional 10 lab hours outside of the regular classroom schedule. This lab experience is designed to 1) provide a "signing only" environment for students to practice classroom skills with Deaf tutors; 2) expose students to communication in a Deaf environment; and 3) provide students with real life exposure to the Deaf community. This class is conducted primarily without voice.

Offered: Fall, Spring, Summer.

### SLG 102 American Sign Language II

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of SLG 101. Includes parameters, syntax, sentence types, facial expression and body language, sign space, pronominalization, nouns/verbs, time line, classifiers/SASSes, pluralizations, deaf culture, and fingerspelling numbers. Also includes conceptual accuracy, modulations, sight line, lexicalized fingerspelling, contractions, direct address, conjunctions, model stories, history of sign, language variations, sign continuum, and how people hear.  
Prerequisite(s): SLG 101.

Information: Students will be required to perform ten additional lab hours outside of the regular schedule. The lab experience is designed to 1) provide a "signing only" environment for students to practice classroom skills with Deaf tutors; 2) expose students to communication in a Deaf environment; 3) provide students with real life exposure to the Deaf community. This class is conducted primarily without voice.

Offered: Fall, Spring, Summer.

### SLG 201 American Sign Language III

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of SLG 102. Includes sentence order, modulation, sign space usage, conceptual accuracy, sign vocabulary, and deaf culture and history.

Prerequisite(s): SLG 102.

Information: Students will be required to perform an additional ten lab hours outside of regular classroom schedule. The lab experience is designed to 1) provide a "signing only" environment for students to practice classroom skills with Deaf tutors; 2) expose students to communication in a Deaf environment; 3) provide students with real life exposure to the Deaf community. This class is conducted primarily without voice.

Offered: Fall, Spring.

### SLG 202 American Sign Language IV

4 credit hours/ 6 periods (3 lec., 3 lab)

Continuation of SLG 201. Includes use of sign space, conceptual accuracy, directionality, mimetic description, dialects, number series, American Sign Language (ASL) expansions, English words with no direct ASL translation, English passive voice to ASL active voice, and the field of interpreting.

Prerequisite(s): SLG 201.

Information: Students will be required to perform an additional ten lab hours outside of regular classroom schedule. The lab experience is designed to 1) provide a "signing only" environment for students to practice classroom skills with Deaf tutors; 2) expose students to communication in a Deaf environment; 3) provide students with real life exposure to the Deaf community. This class is taught primarily without voice.

Offered: Fall, Spring.

## SOCIAL SERVICES

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### SSE 101 Paraprofessional Counseling

2 credit hours/ 2 periods (2 lec.)

Introduction to the role of a paraprofessional on a counseling team. Includes paraprofessional role expectations and limitations. Also includes modes of work available to the paraprofessional, ethical obligation, and responsibilities in working with clients under professional supervision.

Offered: May not be offered this year, check class schedule.

### SSE 105 Introduction to Human Relations

2 credit hours/ 2 periods (2 lec.)

Introduction to the field of paraprofessional counseling including exposure to basic counseling skills. Includes paraprofessional role, impact of personal values, legal and ethical issues, and group processes.

Offered: May not be offered this year, check class schedule.

### SSE 106 Communication Skills in Counseling I

3 credit hours/ 3 periods (3 lec.)

Concepts and foundation communication skills important in developing, establishing, and maintaining effective helping relationships. Emphasis on rapport building, effective listening skills, appropriate feedback, the helping process.

Recommendation: Completion of SSE 105 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

### SSE 110 Introduction to Social Welfare

3 credit hours/ 3 periods (3 lec.)

Introduction to the social welfare system. Includes approaches to service delivery, community resources, bureaucratic structures, welfare myths and realities, special populations, and cultural awareness. Also includes local community agencies and resources, welfare policies and case histories.

Offered: Fall, Spring, Summer.

### SSE 111 Group Work

3 credit hours/ 3 periods (3 lec.)

Examination of group dynamics. Includes communication patterns, leadership, decision-making, conflict resolution, problem solving, and personal growth within groups. Also includes application of concepts through observation, group exercise, and case studies.

Offered: Fall, Spring.

### SSE 121 Study of Substance Abuse

3 credit hours/ 3 periods (3 lec.)

Introduction to the history of drug abuse, including alcohol, in the United States. Includes classification of drugs, historical review of drug laws, prohibition, theories of addiction, treatment, strategies, cultural perspectives and treatment interventions. Also includes special populations, education, and available resources to addicts, alcoholics and their families.

Offered: Fall.

### SSE 123 Substance Abuse Prevention

3 credit hours/ 3 periods (3 lec.)

Comprehensive review of approaches to substance abuse prevention. Includes principles, systems-oriented and client-oriented prevention strategies, programs, and funding, controversial prevention issues, special populations, research, and program evaluation.

Offered: Spring.

### SSE 140 Domestic Violence: Causes and Cures

3 credit hours/ 3 periods (3 lec.)

Overview of historical and contemporary causes of domestic violence. Includes laws and law enforcement, society, populations victimized, and diagnosis and treatment techniques. Also includes community resources, treatment centers, and support groups, cultural awareness, special populations at risk, and theories explaining the prevalence of domestic violence.

Offered: Summer.

### SSE 146 Child Abuse Intervention and Protection

3 credit hours/ 3 periods (3 lec.)

Overview of the scope and nature of child abuse and neglect. Includes the definitions, dynamics, symptoms, risks, and effects of the various forms of child maltreatment and emphasizes prevention and utilization of community resources. Also includes the process of intervention by society, the roles of various professionals in the investigation, adjudication, treatment, and case management of child abuse cases.

Offered: Fall, Spring.

### SSE 154 Nutrition

3 credit hours/ 3 periods (3 lec.)

Examination of nutrients and their use by the body for growth and development. Includes maintenance of health through proper diet.

Information: Same as FSN 154.

Offered: Fall, Spring, Summer.

**SSE 160 Introduction to Youth Services**

3 credit hours/ 3 periods (3 lec.)

Introduction to youth services as offered through youth voluntary organizations, social service and child welfare agencies, juvenile detention and correctional agencies and community agencies. Includes the normal development needs of children and adolescents, special needs of dependent, delinquent, challenged/special needs youth, roles of youth workers, and focusing on prevention through strengthening families and communities. Includes a survey of local youth serving agencies.

Information: Same as AJS 160.

Offered: Fall.

**SSE 170 Community Health Advisor**

3 credit hours/ 3 periods (3 lec.)

Preparation of Community Health Advisors for outreach health prevention, advocacy, education, and referral services within prescribed neighborhoods. Includes community health and human services, capacity-building, cultural mediation, health education assessment, teaching, interpersonal communication, organization, and advocacy skills.

Offered: Fall.

**SSE 202 Casework Methods I**

3 credit hours/ 3 periods (3 lec.)

Theory and practice of casework within the context of the Southwest. Includes case management, interviewing, case history and review, treatment planning, and development of helping relationships. Also includes major helping theories and strategies and case samples from varied settings, and provides a theoretical foundation and skills base for social work interventions with individuals, small groups and larger systems.

Offered: Fall, Spring.

**SSE 204 Counseling in a Multicultural Setting**

3 credit hours/ 3 periods (3 lec.)

Concepts, techniques and skills in values, perceptions, attitudes, and behaviors emphasizing intercultural communication patterns. Includes techniques for establishing rapport and interaction methodologies in a multicultural context. Also includes competencies, strategies, and treatment modalities necessary for the paraprofessional working successfully with multicultural clients.

*Recommendation: Completion of SSE 106 before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

**SSE 205 Case Report Writing**

1 credit hour/ 1 period (1 lec.)

Concepts, techniques, and skills necessary to create and maintain case report records. Includes terminology, technical forms, and observation techniques.

*Recommendation: Completion of SSE 106 before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

**SSE 206 Child and Family Advocacy**

3 credit hours/ 3 periods (3 lec.)

Overview and advocacy concepts in relation to multiple systems affecting children and their families. Includes identification of appropriate systems, community resources, wrap around theory and navigation skills in a variety of children's systems to facilitate family support and needs.

*Recommendation: Completion of SSE 205 before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

**SSE 210 Community Organization and Development**

3 credit hours/ 3 periods (3 lec.)

Principles and techniques of organizing to effect change. Includes role of the professional organizer, nature of institutions, causes of change or failure to change, and strategies for effective change.

*Prerequisite(s): SSE 110.*

Offered: Fall, Spring.

**SSE 211 Group Technique Applications**

3 credit hours/ 3 periods (3 lec.)

Application of advanced concepts in group dynamics. Includes skill development through in-class experiential learning and group facilitation. Also includes community-group case studies, ethical standards, multicultural issues.

*Prerequisite(s): SSE 111.*

Offered: Fall, Spring.

**SSE 212 Casework Methods II**

3 credit hours/ 3 periods (3 lec.)

Advanced techniques in interviewing, recording, client evaluation, case management, strategies for intervention, and focus on diverse and special populations. Includes application of advanced skills in varied settings and attention to service delivery in a fragmented community resource system.

*Prerequisite(s): SSE 202.*

Offered: Fall, Spring.

**SSE 220 Treatment of the Substance Abuser**

3 credit hours/ 3 periods (3 lec.)

Principles and techniques of treating the substance abuser. Includes treatment modalities, helping, treatment plans, case studies, withdrawal, and value

clarification. Also includes role playing in treatment situations, causes of substance abuse, integration of substance abuse treatment and case management skills.

*Prerequisite(s): SSE 121.**Recommendation: Completion of SSE 123 before enrolling in this course.*

Offered: Spring.

**SSE 222 Political and Legal Aspects of Drug Use**

3 credit hours/ 3 periods (3 lec.)

Overview of drug abuse and the law. Includes historical and legal overview, major drug legislation and court decisions, attitudes toward drug use and the connection between drugs, crime and gangs, implications of decriminalization or legalization of illicit drugs, and narcotics. Also includes nature, uses, legal status, social and economic aspects of the major psychoactive drugs, international drug trafficking and its effect on U.S. policy/programs, law enforcement, and case studies.

*Prerequisite(s): SSE 121.**Recommendation: Completion of SSE 123 before enrolling in this course.*

Offered: Fall.

**SSE 242 Crisis Intervention, Theory and Techniques**

3 credit hours/ 3 periods (3 lec.)

Principles and practice of crisis intervention. Includes theories of crisis intervention and prevention, dynamics of a crisis situation, families and individuals in crisis, self-awareness, communication, and relationship building, and responding to anxiety-provoking situations. Also includes techniques of crisis intervention, role playing in various crisis situations, grief and grief resolution techniques, and community resources and referral methods.

*Prerequisite(s): SSE 202.*

Information: Prerequisite may be waived with consent of instructor.

Offered: Fall.

**SSE 260 Youth Services: Policy, Practice and Prevention**

3 credit hours/ 3 periods (3 lec.)

Principles and techniques of working with youth. Includes an examination of national, state and local policies which impact youth services, effective prevention strategies and how to implement them within the community, and practice skills necessary for working in a variety of youth service settings.

*Prerequisite(s): SSE 160.*

Offered: Spring.

**SSE 261 Introduction to Rehabilitation Services**

3 credit hours/ 3 periods (3 lec.)

Introduction to disability and rehabilitation services. Includes issues faced by persons experiencing disability, the rehabilitation delivery system, vocational rehabilitation outcomes, interpersonal communication skills, consumer involvement and self management, and ethics and professionalism. Also includes issues on environmental barriers and solutions.

Information: Same as EDU 261.

Offered: May not be offered this year, check class schedule.

**SSE 262 Assistive Technology for Individuals with Disabilities**

3 credit hours/ 3 periods (3 lec.)

Study of assistive technology devices, products, and applications techniques. Includes assistive technology to assist individuals with disabilities, special adaptive needs, basic computer skills related to assistive technology, assessment practices and ethical considerations, assistive equipment, positioning and seating technology, programming processor controlled augmentative communication devices, improving accessibility of environment computer software applications, adapting activities to available equipment and supplies, adapting assistive and alternative keyboards to specific needs, programming scanning keyboards and single switch control of the computer, using the internet, voice recognition software, evaluating equipment, developing/adapting low-and mid-tech devices to meet specific needs.

Information: Same as EDU 262.

Offered: May not be offered this year, check class schedule.

**SSE 289 Topics in Community Involvement**

1-6 credit hours/ 1-6 periods (1-6 lec.)

Direct, constructive student involvement in community problems. Includes social change and community service, action planning, change strategies, mobilizing personal power, team membership, causes of community problems, evaluation procedures, formal and informal community resources, geographic and functional communities, and roles of change agents and community service agents.

Information: Students employed or working as volunteers with agencies or groups may get credit for those activities under this course. Same as SSE 289. May be taken two times for a maximum of six credit hours.

Offered: Spring.

**SSE 290 Field Experience Youth Services**

4 credit hours/ 16 periods (1 lec., 15 lab)

Supervised placement in community youth serving agencies. Includes classroom seminars to discuss pertinent theory and issues raised through the field experience.

*Prerequisite(s): SSE 160, 202. Recommended: Consult instructor for alternative prerequisites.*

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring.

**SSE 292 Social Services Field Experience**

4 credit hours/ 16 periods (1 lec., 15 lab)

Supervised placement in community social services agencies. Includes classroom seminars to discuss pertinent theory and issues raised through the field experience.

*Prerequisite(s): SSE 202.**Recommendation: Consult instructor for alternative prerequisites.*

Information: May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring.

**SSE 293 Community Health Advising Field Experience**

6 credit hours/ 25.2 periods (1.2 lec., 24 lab)

Community Health Advisor skills practiced and evaluated in community-based health and human service agencies and settings. Includes supervised placement in community serving agencies and classroom seminars covering pertinent theory and issues raised through the field experience.

*Prerequisite(s): SSE 170.*

Information: Students complete 320 clock hours of direct service scheduled in an 8-week block at 40 hours per week or 16 weeks at 20 hours per week.

Offered: Spring.

**SSE 294 Disability Rehabilitation Services Field Experience**

3 credit hours/ 15 periods (15 lab)

Skills practice in working with persons with disabilities in a supervised setting. Includes direct services to people with disabilities, identifying personal job-related interests, different job roles, conferences with consumer, family, and agencies, communication and problem-solving skills, group processes, applying theories to rehabilitation/disability settings, and developing job skills.

*Prerequisite(s): EDU 270.*

Offered: May not be offered this year, check class schedule.

**SSE 296 Independent Study in Social Services**

1-3 credit hours/ 3-9 periods (3-9 lab)

Advanced projects, research and learning in the social services. Content to be determined by conference between student and instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken three times for a maximum of nine credit hours.

Offered: May not be offered this year, check class schedule.

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**SOCIOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**SOC 101 Introduction to Sociology**

3 credit hours/ 3 periods (3 lec.)

Introduction to the basic concepts of sociology and sociological analysis. Includes identity, folkways, norms, mores, groups, status, role, gender, socialization, social structure, culture and ethnicity. Also includes deviance, social control, bureaucracy, social change, social class, collective behavior, social movements, social stratification, inequality, institutions, social organization, and globalization within and across contemporary societies and cultures.

Offered: Fall, Spring, Summer.

**SOC 110 Introduction to Cities and Global Society**

3 credit hours/ 3 periods (3 lec.)

Introduction to the study of the urban environment. Includes exploring the city, city form and city culture, urban diversity, and the urban dilemma and possible solutions. Also includes a special emphasis on understanding cities on the global as well as community level.

Offered: Fall, Spring.

**SOC 120 Current Social Problems**

3 credit hours/ 3 periods (3 lec.)

Analysis of the causes, effects, and solutions to current social problems. Includes the causes, effects, and the complexity of solutions to current social problems in behavioral variance, inequality, social institutions, and global issues.

*Recommendation: Completion of SOC 101 before enrolling in this course.*

Offered: Fall, Spring.

**SOC 127 Marriage and the Family**

3 credit hours/ 3 periods (3 lec.)

Introduction to the social functions of marriage and the family. Includes structures of marriages and families, relationships, marriage, and transformation of marriage.

Offered: Fall, Spring, Summer.

**SOC 130 Social World of Drugs**

3 credit hours/ 3 periods (3 lec.)

Introduction to the social use and abuse of drugs in the United States. Includes evolution of drug use, pharmacology, social and medical aspects of drugs, the

business of drugs, sociological explanations of drug use and abuse, and social issues, policy, and politics.

*Recommendation: Completion of SOC 101 before enrolling in this course.*

Offered: Fall, Spring.

**SOC 166 Social Gerontology**

3 credit hours/ 3 periods (3 lec.)

Introduction to the bio-cultural and holistic study of aging, dying, and death. Includes the bio-social process of aging, factors in longevity and the social meaning of death.

Offered: May not be offered this year, check class schedule.

**SOC 201 Race, Ethnicity, Minority Groups and Social Justice**

3 credit hours/ 3 periods (3 lec.)

Social processes involved in the construction of difference: race, ethnicity, minority groups, nationality, and social justice. Includes social construction of difference, social justice and democracy, whiteness as an ideology of power: ethnic and minority group relations in the United States, techniques of dominance, exploitation, and ethnic and minority relations, ethnic, national, gender, and sexual relations in comparative perspective, and social justice and the future of inequality systems.

Offered: Fall, Spring, Summer.

**SOC 203 Sociology of Utopia**

3 credit hours/ 3 periods (3 lec.)

Exploration of the idea of utopia and its influence on human societies throughout global history. Includes utopia and social structure, utopias before Christianity, Christian and humanist utopianism, utopian revivals and dystopias, and utopian thinking and social institutions.

Offered: Spring.

**SOC 204 Gender Identities, Interactions and Relations**

3 credit hours/ 3 periods (3 lec.)

Examination of the social structures and processes related to gender in society. Includes sex versus gender, theoretical perspectives, politics past and present, gender and the family, love and marriage, and masculinity. Also includes gender in the workplace, in the media, religion, and medicine, and global perspectives.

Offered: Fall, Spring, Summer.

**SOC 215 Human Sexuality**

3 credit hours/ 3 periods (3 lec.)

Examination of human sexual experience, viewed from sociological and psychological perspectives. Includes psychological, sociological, and cultural legacy of sexuality, biological foundations of sexuality, varieties of sexual behaviors, sexuality and the life cycle, sexual problems, and social issues.

Information: Same as PSY 215.

Offered: Fall, Spring, Summer.

**SOC 273 Sociology of Sport**

3 credit hours/ 3 periods (3 lec.)

Analysis of the impact of sport on society. Includes the relationship of sport to societal institutions: the economy, politics, education, family, religion, and the interrelationships between sport and the concepts of race, gender, and stratification. Also includes the examination of contemporary issues in sport including the economics of sport, ethics, gender equity, and the relationships between players, coaches, and fans.

Offered: May not be offered this year, check class schedule.

**SOC 280 Sociology of Education**

3 credit hours/ 3 periods (3 lec.)

Analysis of the role and purpose of education in society. Includes overview of the education system, social theories of education, cultural theories of educational, policy and school reform, and education for individual and societal change.

Offered: May not be offered this year, check class schedule.

**SOC 289 Advanced Topics in Community Involvement**

1-6 credit hours/ 1-6 periods (1-6 lec.)

Direct, constructive student involvement in community problems. Includes social change and community service, action planning, change strategies, mobilizing personal power, team membership, causes of community problems, evaluation procedures, formal and informal community resources, geographic and functional communities, and roles of change agents and community service agents.

Information: Students employed or working as volunteers with agencies or groups may get credit for those activities described in this course. Same as SSE 289. May be taken two times for a maximum of 6 credits.

Offered: Fall, Spring.

**SOC 296 Individual Studies in Sociology**

1-6 credit hours/ 1-6 periods (1-6 lec.)

Exploration of special interest areas. Includes sociological question(s), methodological research design, implementation of viable research, data analysis using sociological theories, and presentation of findings.

Information: Activities determined by conference between student and instructor related to content of this course. May be taken two times for a maximum of six credit hours.

Offered: May not be offered this year, check class schedule.



## SPANISH

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### SPA 050 Social and Cultural Spanish: Food Traditions and Dining

2 credit hours/ 2 periods (2 lec.)

Introduction to the Spanish language presented in the context of food traditions and dining. Includes food in the culture of Spanish speaking countries, language of groceries and ingredients, and conversation for dining.

Offered: May not be offered this year, check class schedule.

### SPA 051 Social and Cultural Spanish: Travel

2 credit hours/ 2 periods (2 lec.)

Introduction to the Spanish language presented in the context of travel, from planning a trip to returning home. Includes travel in Spanish speaking countries, words and phrases related to transportation, conversation for hotels, restaurants, and tourist services, and language of health and hygiene.

Offered: May not be offered this year, check class schedule.

### SPA 052 Social and Cultural Spanish: Cinema

2 credit hours/ 2 periods (2 lec.)

Viewing and discussing Spanish language films from regions throughout the Spanish-speaking world. Includes cinema of Spain, Cuba, Caribbean, South America, Mexico, and Central America. Also includes sociopolitical elements and cultural values of the regions expressed through films.

Information: No prior knowledge of Spanish is required, sub-titles are provided.

Offered: May not be offered this year, check class schedule.

### SPA 053 Social and Cultural Spanish: Music

2 credit hours/ 2 periods (2 lec.)

Listening and discussing contemporary Spanish and Latin American songs from the earlier decades to the present. Includes rhythms, instruments, and composers.

Offered: May not be offered this year, check class schedule.

### SPA 055 Language Study and Travel in Spain, Italy, and France

2 credit hours/ 2 periods (2 lec.)

Introduction to French, Italian, and Spanish language presented in the context of travel through these three countries. Includes travel in Spain, Italy, and France, lodging, money, and transportation terminology, culinary traditions, restaurants and markets, and travel destinations.

Information: Prior language knowledge is not required. Same as FRE/ITA 055.

Offered: Spring, Summer.

### SPA 056 Social & Cultural Spanish: Dance, Pre-Columbian to Colonial

2 credit hours/ 2 periods (2 lec.)

Introduction of Pre-Columbian to Colonial dances of Latin America presented in historical context. Includes mythology of dance, historical background of dance, and music and instruments. Also includes cultural contexts of movements and dances.

Offered: May not be offered this year, check class schedule.

### SPA 057 Social&Cultural Spanish:Dance from Post-Colonial to Contemporary

2 credit hours/ 2 periods (2 lec.)

Introduction of Post-Colonial to Contemporary dances of Latin America presented in historical context. Includes historical backgrounds of dance, and dances of North, Central, and South America. Also includes cultural contexts of movements and dances.

Offered: May not be offered this year, check class schedule.

### SPA 085 Introductory Spanish

4 credit hours/ 4 periods (4 lec.)

Beginning Spanish for students with no previous formal study of the language. Includes correct pronunciation, basic grammar and conversation, and common communications such as informal greetings and numbers.

Information: This course is not for transfer, but helps prepare students for success in transferable courses.

Offered: Fall, Spring.

### SPA 101 Elementary Spanish I

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

Information: SPA 101A, 101B, 101C, 101D together constitute SPA 101.

Offered: Fall, Spring, Summer.

### SPA 101A Elementary Spanish I - Module A

1 credit hour/ 1 period (1 lec.)

SPA 101A constitutes approximately the first one-fourth of SPA 101.

Information: SPA 101A, 101B, 101C, 101D together constitute SPA 101.

Offered: May not be offered this year, check class schedule.

### SPA 101B Elementary Spanish I - Module B

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-fourth of SPA 101.

Prerequisite(s): SPA 101A.

Information: SPA 101A, 101B, 101C, 101D together constitute SPA 101.

Offered: May not be offered this year, check class schedule.

### SPA 101C Elementary Spanish I - Module C

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-fourth of SPA 101.

Prerequisite(s): SPA 101B.

Information: SPA 101A, 101B, 101C, 101D together constitute SPA 101.

Offered: May not be offered this year, check class schedule.

### SPA 101D Elementary Spanish I - Module D

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the fourth one-fourth of SPA 101.

Prerequisite(s): SPA 101C.

Information: SPA 101A, 101B, 102C, 101D together constitute SPA 101.

Offered: May not be offered this year, check class schedule.

### SPA 101FB Elementary Spanish for Finance and Business

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness. Also includes vocabulary in a business and finance context.

Information: Same as SPA 101. Emphasis on financial and business-related vocabulary.

Offered: Fall, Spring, Summer.

### SPA 101HC Elementary Spanish for Healthcare

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness. Also includes vocabulary in a healthcare context.

Information: Same as SPA 101. Emphasis on healthcare-related vocabulary.

Offered: Fall, Spring, Summer.

### SPA 101LE Elementary Spanish for Law Enforcement

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness. Also includes vocabulary in a law enforcement context.

Information: Same as SPA 101. Emphasis on law enforcement-related vocabulary.

Offered: Fall, Spring, Summer.

### SPA 101SP Elementary Spanish for School Personnel

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness. Also includes vocabulary in an educational context.

Information: Same as SPA 101. Emphasis on educational-related vocabulary.

Offered: Fall, Spring, Summer.

### SPA 102 Elementary Spanish II

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 101. Includes further development of oral and written forms, additional grammatical structures, interpersonal transactions, and geographical and cultural differences. Also includes an emphasis on balancing more complex structures with active communication.

Prerequisite(s): SPA 101.

Information: Prerequisites may be waived with one year high school Spanish. See an instructor, advisor, or counselor.

Offered: Fall, Spring, Summer.

### SPA 102A Elementary Spanish II - Module A

1 credit hour/ 1 period (1 lec.)

SPA 102A constitutes approximately the first one-fourth of SPA 102.

Prerequisite(s): SPA 101.

Information: SPA 102A, 102B, 102C, and 102D together constitute SPA 102.

Offered: May not be offered this year, check class schedule.

### SPA 102B Elementary Spanish II - Module B

1 credit hour/ 1 period (1 lec.)

SPA 102B constitutes approximately the second one-fourth of SPA 102.

Prerequisite(s): SPA 102A.

Information: SPA 102A, 102B, 102C and 102D together constitute SPA 102.

Offered: May not be offered this year, check class schedule.

### SPA 102C Elementary Spanish II - Module C

1 credit hour/ 1 period (1 lec.)

SPA 102C constitutes approximately the third one-fourth of SPA 102.

Prerequisite(s): SPA 102B.

Information: SPA 102A, 102B, 102C and 102D together constitute SPA 102.

Offered: May not be offered this year, check class schedule.

**SPA 102D Elementary Spanish II - Module D**

1 credit hour/ 1 period (1 lec.)

SPA 102D constitutes approximately the fourth one-fourth of SPA 102.

Prerequisite(s): SPA 102C.

Information: SPA 102A, 102B, 102C, and 102D together constitute SPA 102.

Offered: May not be offered this year, check class schedule.

**SPA 102FB Elementary Spanish II for Finance and Business**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 101FB. Includes further development of oral and written forms, additional grammatical structures, interpersonal transactions, and geographical and cultural differences. Also includes an emphasis on balancing more complex structures with active communication and vocabulary in a business and finance context.

Prerequisite(s): SPA 101.

Information: Same as SPA 102. Emphasis on financial and business-related vocabulary.

Offered: Spring, Summer.

**SPA 102HC Elementary Spanish II for Healthcare**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 101HC. Includes further development of oral and written forms, additional grammatical structures, interpersonal transactions, and geographical and cultural differences. Also includes an emphasis on balancing more complex structures with active communication and vocabulary in a healthcare context.

Prerequisite(s): SPA 101.

Information: Same as SPA 102. Emphasis on healthcare-related vocabulary.

Offered: Spring, Summer.

**SPA 102LE Elementary Spanish II for Law Enforcement**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 101LE. Includes further development of oral and written forms, additional grammatical structures, interpersonal transactions, geographical and cultural differences. Includes an emphasis on balancing more complex structures with active communication and vocabulary in a law enforcement context.

Prerequisite(s): SPA 101.

Information: Same as SPA 102. Emphasis on law enforcement-related vocabulary.

Offered: Spring, Summer.

**SPA 102SP Elementary Spanish II for School Personnel**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 101SP. Includes further development of oral and written forms, additional grammatical structures, interpersonal transactions, and geographical and cultural differences. Also includes an emphasis on balancing more complex structures with active communication and vocabulary in an education context.

Prerequisite(s): SPA 101.

Information: Same as SPA 102. Emphasis on educational-related vocabulary.

Offered: Spring, Summer.

**SPA 103 Beginning Spanish for Spanish Speakers**

4 credit hours/ 4 periods (4 lec.)

Spanish for individuals of bilingual background. Includes basic oral and written forms for bilingual individuals, grammatical structures, cultural and stylistic elements, interpersonal transactions, and geographical and cultural awareness. Also includes an awareness of diversity of Spanish-speaking cultures.

Prerequisite(s): Ability to speak Spanish.

Offered: Fall, Spring.

**SPA 106 Beginning Conversation**

3 credit hours/ 3 periods (3 lec.)

Introduction to conversational Spanish. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and cultural perspectives. Also includes reading, writing, speaking, and listening skills with primary emphasis on oral communication.

Offered: Fall, Summer.

**SPA 107 Intermediate Conversation**

3 credit hours/ 3 periods (3 lec.)

Continuation of SPA 106. Includes oral and written communication, additional grammatical structures, additional interpersonal transactions, and additional cultural perspectives. Also includes additional reading, writing, speaking, and listening skills with primary emphasis on oral communication.

Prerequisite(s): SPA 106.

Offered: Spring.

**SPA 120 Spanish for Medical Personnel**

3 credit hours/ 3 periods (3 lec.)

Conversational practice in a medical context. Designed to develop speaking and listening techniques essential for basic medical situations, stressing expressions of courtesy and medical terminology.

Offered: Fall, Spring.

**SPA 121 Elementary Spanish for Business I**

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish with a primary focus on language used in a variety of business situations. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

Information: Same as IBS 121.

Offered: May not be offered this year, check class schedule.

**SPA 122 Elementary Spanish for Business II**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 121. Includes increasingly complex oral and written forms, grammatical structures, and language used in a variety of business situations. Includes interpersonal business transactions and geographical and cultural awareness.

Prerequisite(s): Same as SPA 121.

Information: Same as IBS 122.

Offered: May not be offered this year, check class schedule.

**SPA 126 Elementary Spanish for School Personnel I**

4 credit hours/ 4 periods (4 lec.)

Introduction to Spanish with a primary focus on language used in a variety of school and academic situations. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

Offered: May not be offered this year, check class schedule.

**SPA 127 Elementary Spanish for School Personnel II**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 126. Includes increasingly complex oral and written forms, grammatical structures, and language used in a variety of school and academic situations.

Prerequisite(s): SPA 126.

Offered: May not be offered this year, check class schedule.

**SPA 128 Elementary Spanish for Law Enforcement I**

4 credit hours/ 4 periods (4 lec.)

Introductory Spanish for law enforcement professionals. Includes oral language as the primary focus applied to a variety of routine protocols and emergency situations. Also includes some written forms, grammatical structures, interpersonal transactions, and cultural awareness.

Offered: May not be offered this year, check class schedule.

**SPA 129 Elementary Spanish for Law Enforcement II**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 128. Includes oral language as the primary focus applied to a variety of routine protocols and emergency situations. Also includes some written forms, grammatical structure, interpersonal transactions, and cultural awareness.

Recommendation: Completion of SPA 128 is recommended before enrolling in this class.

Offered: May not be offered this year, check class schedule.

**SPA 201 Intermediate Spanish I**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 102. Includes reading a variety of materials, discussing these readings, and writing compositions while reviewing grammatical structures. Also includes listening comprehension and Hispanic cultural components where Spanish is spoken.

Prerequisite(s): SPA 102.

Offered: Fall, Spring, Summer.

**SPA 202 Intermediate Spanish II**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 201. Includes reading selections from original, authentic writings, conversation and discussions on a more advanced level, writing compositions using grammatically correct structure, and development of creative writing skills in Spanish. Also includes listening and comprehending lengthy spoken discourse, and a broader study of cultural differences within the Hispanic world.

Prerequisite(s): SPA 201.

Offered: Fall, Spring, Summer.

**SPA 203 Writing and Oral Skills for Spanish Speakers**

4 credit hours/ 4 periods (4 lec.)

Continuation of SPA 103. Includes further development of oral and written forms for bilingual individuals, additional grammatical structures, cultural and stylistic elements, interpersonal transactions, and geographical and cultural differences. Also includes a continued awareness of the diversity of Spanish.

Prerequisite(s): SPA 103.

Information: Prerequisites may be waived with ability to speak Spanish.

Offered: Fall, Spring.

**SPA 206 Advanced Conversation**

4 credit hours/ 4 periods (4 lec.)

Development of oral communicative techniques and critical thinking skills. Includes communicative skills, complex vocabulary utilization, grammatical structures, and cultural awareness.

*Prerequisite(s): SPA 107.*

Offered: Fall.

**SPA 230 Introduction to Literature in Spanish**

4 credit hours/ 4 periods (4 lec.)

Survey of literature written in Spanish. Includes genres of Spanish literature, literary periods of Spain and Latin America, major Spanish literary works, advanced essay composition on Spanish literary works, interpreting Spanish literary works, and oral presentations on Spanish literary works and authors.

*Prerequisite(s): SPA 202.*

Information: Prerequisites may be waived with consent of instructor.

Offered: May not be offered this year, check class schedule.

**SPA 240 Grammar and Composition**

3 credit hours/ 3 periods (3 lec.)

Development of advanced grammar and writing communicative skills. Includes grammar structures, factual, expository, and argumentative writing.

*Prerequisite(s): SPA 251 or 253, or TRS 102.*

Offered: Spring.

**SPA 250 Spanish Phonetics**

3 credit hours/ 3 periods (3 lec.)

Introduction to the sound system of the Spanish language. Includes terminology, classification of sounds, characteristics of sounds, phonological elements, and dialectal variation.

*Prerequisite(s): SPA 202 or 253.*

Offered: Fall.

**SPA 251 Spanish for Majors**

3 credit hours/ 3 periods (3 lec.)

Tools for thinking critically and analytically in Spanish. Includes writing proficiency, reading proficiency, control of language through lexical and grammatical precision.

*Prerequisite(s): SPA 202.*

Offered: Fall, Spring.

**SPA 253 Intermediate Spanish for Spanish Speakers**

4 credit hours/ 4 periods (4 lec.)

Intensive writing/speaking in Spanish for individuals of bilingual background. Includes intermediate oral communication, complex reading communication, intermediate written communication, and themes in popular and traditional cultures.

*Prerequisite(s): SPA 203.*

Information: Prerequisites may be waived with ability to speak, read, and write Spanish.

Offered: Fall, Spring.

**SPA 254 Intermediate Grammar and Writing for Spanish Speakers**

3 credit hours/ 3 periods (3 lec.)

Intensive grammar and writing for Spanish speaker within a dynamic cultural context. Includes complex intermediate oral communication, intermediate grammar and writing communication, exploration of diversity of culture and customs, and themes in literature.

*Prerequisite(s): SPA 253.*

Offered: Spring.

**SPA 296 Independent Study in Spanish**

1-4 credit hours/ 1-4 periods (1-4 lec.)

Independent Spanish readings or other projects under the supervision of an instructor.

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring, Summer.

**SPA 297S3 Spanish Language Seminar: Spanish for Bilingual Speakers**

3 credit hours/ 3 periods (3 lec.)

Communicative approach to refining Spanish language skills. Includes oral and written forms, grammatical structures, interpersonal transactions, and cultural perspectives. Also includes a focus on development of reading, writing, speaking, and listening skills using "realia" from contemporary literature, current events, television, music, and culture.

Information: Consent of instructor is required before enrolling in this course. Offered: May not be offered this year, check class schedule.

**SPA 297S4 Spanish for Technical and Commercial Purposes**

4 credit hours/ 4 periods (4 lec.)

Speaking, listening and writing techniques essential for basic business and legal usage. Includes technical vocabulary and cultural concepts related to international communications and commerce. Also includes focus on individual professional and occupational needs with particular emphasis on legal concerns.

*Prerequisite(s): SPA 202.*

Offered: May not be offered this year, check class schedule.

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**SPEECH COMMUNICATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**SPE 102 Introduction to Speech Communication**

3 credit hours/ 3 periods (3 lec.)

Introduction to the function, basic concepts, and skills of oral communication in interpersonal and public address situations. Includes listening, communication styles, communication barriers, and methods to help eliminate barriers.

Offered: Fall, Spring, Summer.

**SPE 110 Public Speaking**

3 credit hours/ 3 periods (3 lec.)

Study and training in public speaking with emphasis on audience adaptation. Includes developing skills in the areas of research, logic, analysis, organization, and delivery in a multicultural society.

Offered: Fall, Spring, Summer.

**SPE 120 Business and Professional Communication**

3 credit hours/ 3 periods (3 lec.)

Study and training in organizational communication within a multicultural/global environment. Includes informative and persuasive speaking, interviewing, listening, and group problem-solving and decision-making.

Offered: Fall, Spring, Summer.

**SPE 124 Argumentation**

3 credit hours/ 3 periods (3 lec.)

Principles and practice of argumentation. Includes basic forms of analysis, evidence, proof, reasoning, and refutation.

Offered: Fall.

**SPE 130 Small Group Discussion**

3 credit hours/ 3 periods (3 lec.)

Study and training in group process. Includes the nature and functions of groups, norms of group participation and interaction, and group leadership. Includes a special focus on communication in group decision-making.

Offered: May not be offered this year, check class schedule.

**SPE 136 Oral Interpretation of Literature**

3 credit hours/ 3 periods (3 lec.)

Study and training in the oral presentation of literature. Includes literary conventions, analysis techniques, role of the interpreter, use of voice and body, characterization, and oral interpretation modes. Also includes a special focus on analyzing and experiencing literature as human discourse.

Offered: May not be offered this year, check class schedule.

**SPE 249 Special Studies in Speech Communication**

1-4 credit hours/ 1-4 periods (1-4 lec.)

Under individual guidance of an instructor, student researches an aspect of communication not available through regular course offerings.

Information: Six credit hours in speech communication is required before enrolling in this course.

Offered: Fall, Spring.

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**STUDENT SUCCESS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**STU 100 College Study Skills**

1 credit hour/ 1 period (1 lec.)

Skills and techniques required for being an efficient student. Includes study techniques, memory and concentration, college resources, goal setting, time management, attentive listening, organization of lecture/text material, note taking systems, test taking strategies, and test anxiety.

Offered: Fall, Spring, Summer.

**STU 100A How to Study**

.25 credit hours/ .25 periods (.25 lec.)

Applications and concepts of successful study. Includes study techniques, memory and concentration, and available college resources.

Information: STU 100A, 100B, 100C, and 100D together constitute STU 100.

Offered: Fall, Spring.

**STU 100B Time Management**

.25 credit hours/ .25 periods (.25 lec.)

Factors affecting individual use of time. Includes goal setting and time management.

Information: STU 100A, 100B, 100C, and 100D together constitute STU 100.

Offered: Fall, Spring.



**STU 100C Note Taking Tips**

.25 credit hours/ .25 periods (.25 lec.)

Factors affecting the note taking process. Includes attentive listening, organization of lecture/text material, and note taking systems.

Information: STU 100A, 100B, 100C, and 100D together constitute STU 100.

Offered: Fall, Spring.

**STU 100D Testing Tips**

.25 credit hours/ .25 periods (.25 lec.)

Explaining strategies and causes of a successful testing experience. Includes test taking strategies and test anxiety.

Information: STU 100A, 100B, 100C, and 100D together constitute STU 100.

Offered: Fall, Spring.

**STU 102 Personal Finance in College Decision Making**

1 credit hour/ 1 period (1 lec.)

Basic elements of personal and family finances. Includes managing personal finances, funding resources and financial obligations, strategies for success, setting a career direction and taking control of the future, and transition from college into the mainstream.

Offered: Fall, Spring, Summer.

**STU 102A Managing Personal Finances**

.25 credit hours/ .25 periods (.25 lec.)

Skills necessary for the development of a financial plan. Includes budget development and the implications of borrowing and using credit.

Information: STU 102A, 102B, 102C and 102D together constitute STU 102.

Offered: May not be offered this year, check class schedule.

**STU 102B Meeting Financial Obligations**

.25 credit hours/ .25 periods (.25 lec.)

Identification of personal resources. Includes funding resources and financial obligations.

Information: STU 102A, 102B, 102C, and 102D together constitute STU 102.

Offered: May not be offered this year, check class schedule.

**STU 102C Strategies for Taking Control of Your Future**

.25 credit hours/ .25 periods (.25 lec.)

Development of an educational plan based on career expectations. Includes strategies for success, setting a career direction, and taking control of the future.

Information: STU 102A, 102B, 102C, and 102D together constitute STU 102.

Offered: May not be offered this year, check class schedule.

**STU 102D Transition from College to the Mainstream**

.25 credit hours/ .25 periods (.25 lec.)

Techniques for transitioning from college to employment. Includes living within financial means and loan repayment obligations.

Information: STU 102A, 102B, 102C, and 102D together constitute STU 102.

Offered: May not be offered this year, check class schedule.

**STU 105 Math Success Skills**

1 credit hour/ 1 period (1 lec.)

Math study and test-taking skills and overcoming math anxiety. Includes effective math study skills, reading a math text, problem solving, current research on math anxiety, and overcoming math anxiety.

Offered: Fall, Spring.

**STU 107 University Transfer Preparation**

1 credit hour/ 1 period (1 lec.)

Obtain knowledge and develop a plan to prepare for a successful transition to a university. Includes degree/major selection, introduction to transfer resources, development of personal transfer plan, and general transition planning.

Prerequisite(s): REA 081.

Recommendation: Completion of REA 091 and WRT 100 before enrolling in this course or concurrent enrollment. Students should take this course before completing 30 college credits.

Offered: Fall, Spring, Summer.

**STU 108 Building Community Through Service**

1 credit hour/ 1 period (1 lec.)

Identification and implementation of real-world experiences that contribute to career and life goals. Includes social responsibility and civic engagement, meaningful vision, action planning, plan implementation, and reflective presentation.

Information: Includes community service hours as part of the course.

Offered: May not be offered this year, check class schedule.

**STU 109 Making Career Choices**

2 credit hours/ 2 periods (2 lec.)

Development of skills and knowledge necessary to make career choices. Includes values clarification, skill identification, interest and personality assessments, career research strategies, introduction to a plan of action, review of self-assessment inventories, adult career development, identifying action steps for career goal achievement, decision making, and developing an educational and a career plan.

Offered: Fall, Spring, Summer.

**STU 109A Making Career Choices: Interests and Values**

1 credit hour/ 1 period (1 lec.)

Development of skills and knowledge necessary to make career choices. Includes values clarification, skill identification, interest and personality assessments, career research strategies, introduction to a plan of action, and review of self-assessment inventories.

Information: STU 109A and 109B together constitute STU 109.

Offered: Fall, Spring, Summer.

**STU 109B Career Choices: Goal Development**

1 credit hour/ 1 period (1 lec.)

Making Career Choices: Goal Development Resources for goal development. Includes adult career development, identifying action steps for career goal achievement, decision making, and developing an educational and a career plan.

Information: STU 109A and 109B together constitute STU 109.

Offered: May not be offered this year, check class schedule.

**STU 110 Academic & Confidence Skills Building**

2 credit hours/ 2 periods (2 lec.)

Exploration and assessment of student's current self-esteem level for student success. Includes definition, early self-esteem theorists, components of self-esteem development, global and area specific self-esteem, personal assessment, influence of significant others, life script, personality preferences, cultural influences, communication skills, irrational beliefs, cognitive behavioral change strategies as applied to college and life, risk taking, and goal development for student success.

Offered: Spring.

**STU 121 PROGRESS! Life Skills Management**

3 credit hours/ 3 periods (3 lec.)

Techniques for developing academic, personal, and professional skills of the single parent, homemaker, and reentry student. Includes college success tools, skills, and community resources, personal, academic, and financial aid goals, time management, self-esteem, stress management techniques, career exploration, gender awareness, assertiveness training, critical thinking skills, job development, and portfolio development.

Information: Must be accepted into the PROGRESS! program. See an advisor or counselor for more information.

Offered: Fall, Spring.

**STU 130 Stress Management for Wellness**

3 credit hours/ 3 periods (3 lec.)

Principles and techniques for stress management and wellness in daily life. Includes the environmental, physical, and psychological factors and impact of stress on daily life, identification of wellness concepts in the areas of nutrition, physical fitness, addictions, codependency, stress management, emotions, life values, and a healthy life style.

Offered: Fall, Spring.

**STU 150 Becoming a Master Student**

3 credit hours/ 3 periods (3 lec.)

Enhance academic and personal skills to maximize learning and success at the college level. Includes critical thinking skills, learning styles, college and/or career goals, study skills and personal styles. Also includes examination of human diversity, values, perspectives, as they relate to student's success.

Recommendation: Completion of REA 091 and WRT 100 before enrolling in this course or concurrent enrollment.

Offered: Fall, Spring, Summer.

**STU 200 Becoming a Critical Thinker**

3 credit hours/ 3 periods (3 lec.)

Development and application of thinking strategies. Includes understanding the fundamentals, application of thinking skills to everyday issues, perceiving, believing and knowing, critical questioning, reporting, inferring and judging, argumentation, language and thought, creative thinking, critical thinking strategies.

Recommendation: Completion of REA 091 before enrolling in this course or concurrent enrollment.

Offered: Fall, Spring.

**STU 210 Transfer Strategies**

2 credit hours/ 2 periods (2 lec.)

Transitioning to a college or university. Includes planning for successful transferring, community college/university resources, and transition procedures, and transfer portfolio. Also includes policies and applications activities for transferring to a university or college of choice.

Offered: Fall, Spring.

**STU 230 Dynamics of Leadership**

3 credit hours/ 3 periods (3 lec.)

Supervised practical training in leadership. Includes history, philosophy and vision of leadership, aspects of leadership, power of positive vision, goal setting, decision making, life planning, identifying a personal philosophy, team building, delegating, ethics in leadership, servant leadership, initiating change, managing conflict, and designing and completing leadership projects.

Information: Same as MGT 230.

Offered: Fall, Spring.

**STU 230A Dynamics of Leadership: Philosophy and Vision**

.5 credit hours/ .5 periods (.5 lec.)

Introduction to leadership. Includes history of leadership, aspects of leadership, and power of positive vision.

Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230. Same as MGT 230A.

Offered: May not be offered this year, check class schedule.

**STU 230B Dynamics of Leadership: Decision Making & Goal Setting**

.5 credit hours/ .5 periods (.5 lec.)

Achieving positive ends. Includes goal setting, decision making, life planning, and identifying a personal philosophy.

Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230. Same as MGT 230B.

Offered: May not be offered this year, check class schedule.

**STU 230C Dynamics of Leadership: Team Building and Empowering**

.5 credit hours/ .5 periods (.5 lec.)

Positive groups dynamics. Includes team building and delegating.

Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230. Same as MGT 230C.

Offered: May not be offered this year, check class schedule.

**STU 230D Dynamics of Leadership: Ethics in Leadership**

.5 credit hours/ .5 periods (.5 lec.)

Development of ethical behavior. Includes ethics in leadership, servant leadership. Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230. Same as MGT 230D.

Offered: May not be offered this year, check class schedule.

**STU 230E Dynamics of Leadership: Conflict and Change**

.5 credit hours/ .5 periods (.5 lec.)

Elements of the change process. Includes initiating change and managing conflict. Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230. Same as MGT 230E.

Offered: May not be offered this year, check class schedule.

**STU 230F Dynamics of Leadership: Developing Viable Projects**

.5 credit hours/ .5 periods (.5 lec.)

Effective leadership skills. Includes designing/completing leadership projects.

Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230. Same as MGT 230F.

Offered: May not be offered this year, check class schedule.

**STU 240 Exploring Leadership through Community Engagement**

3 credit hours/ 3 periods (3 lec.)

Leadership experience through supervised service learning and community involvement. Includes personal leadership attributes, relational and service models of leadership, personal vision, community leadership models, leadership awareness, community dynamics, community activities, evaluation, and portfolio development. Also includes participation in a community and/or college service learning project.

*Recommendation: Completion of REA 091 and STU 230 or other meaningful leadership experiences before enrolling in this course.*

Information: Consent of instructor or advisor is required before enrolling in this course. Intended for University of Arizona transfer. This course fulfills some of the requirements for the Pima Leadership Institute. See the course instructor for additional information.

Offered: May not be offered this year, check class schedule.

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**TECHNOLOGY**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**TEC 100 Introduction to Electronics Technology**

3 credit hours/ 4 periods (2 lec., 2 lab)

Overview of the principles and techniques of basic electrical concepts. Includes fundamentals of electricity, current, voltage, resistance, ohm's law, electrical measurements, meters, power, DC circuits, magnetism, inductance, capacitance, alternating current, transformers, and AC circuits. Also includes the language of electronics and the mathematical foundation and relationships relative to the electronics industry.

Offered: Fall.

**TEC 101 Physics for Technology**

3 credit hours/ 3 periods (3 lec.)

Fundamentals of applied physics for technology. Includes matter, motion, forces, work and energy, fluids, temperature and heat, wave motion, electricity, direct current electricity, magnetism, alternating current, electronic devices, and light.

*Prerequisite(s):* MAT 122 or TEC 111.*Corequisite(s)*

Offered: Spring.

**TEC 101A Physics for Technology - A**

2 credit hours/ 4 periods (1 lec., 3 lab)

Introductory experimentation and study of applied mechanical, fluid, electrical, and thermal systems. Includes the physical constructs of force, work, rate, and resistance.

Offered: May not be offered this year, check class schedule.

**TEC 101B Physics for Technology - B**

2 credit hours/ 4 periods (1 lec., 3 lab)

Continuation of TEC 101A. Includes experimentation and study of applied mechanical, fluid, electrical, and thermal systems within the physical constructs of energy, power, and force transformation.

*Prerequisite(s):* TEC 101A or consent of instructor.

Offered: May not be offered this year, check class schedule.

**TEC 102 Principles of Electronic and Optical Devices**

3 credit hours/ 4 periods (2 lec., 2 lab)

Overview of the principles and techniques of basic electronic and optical devices. Includes semiconductor transistors, field effect transistors, thyristors, integrated circuits, optoelectronic devices, power supplies, amplifier applications, oscillators, waveshaping circuits, basic logic gates, and sequential logic circuits.

*Prerequisite(s):* TEC 100.

Offered: Fall.

**TEC 103 Light and Optical Systems**

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to light and optical systems used in photolithographic processes and equipment in semiconductor manufacturing. Including principles, terminology, and components used in basic optical systems.

*Prerequisite(s):* TEC 113.

Offered: Spring.

**TEC 104 Introduction to Robotics**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles of mechanical systems, electronics, and programming as applied to the design, build, and mobilization of remote control and autonomous robots. Includes hardware familiarization, building a robot, programming, implementing the hardware, basic gears, specialized gears and racks, implementing specialized hardware, interfacing the hardware, programming the RCX, programming commands, preparing for competition, designing new ideas, preparing the program, and creating a challenging design. Also includes, testing, and competing with Roverbot and Inventorbot.

Offered: Spring.

**TEC 111 Applied Math I**

3 credit hours/ 3 periods (3 lec.)

Introduction to numerical operations in measurement and systems of units. Includes geometric figures, waveshapes, scale drawings, collection of data, display of data, and data calculations. Also includes basic algebraic and numeric expressions, scientific notation, and instruction on using the handheld calculator.

Offered: May not be offered this year, check class schedule.

**TEC 111A Applied Math I: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of TEC 111.

Information: TEC 111A, 111B, and 111C together constitute TEC 111.

Offered: May not be offered this year, check class schedule.

**TEC 111B Applied Math I: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of TEC 111.

*Prerequisite(s):* TEC 111A.

Information: TEC 111A, 111B, and 111C together constitute TEC 111.

Offered: May not be offered this year, check class schedule.

**TEC 111C Applied Math I: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of TEC 111.

*Prerequisite(s):* TEC 111B.

Information: TEC 111A, 111C, and 111C together constitute TEC 111.

Offered: May not be offered this year, check class schedule.

**TEC 112 Applied Math II**

3 credit hours/ 3 periods (3 lec.)

Continuation of TEC 111. Includes linear equations, functional notation, quadratic equations, logarithms, complex numbers, and basic analytic geometry. Also includes many examples and exercises pertaining to electrical, magnetic, fluidic, thermal, mechanical, and chemical systems.

*Prerequisite(s):* TEC 111 or MAT 092 or required score on the mathematics assessment test.

Offered: May not be offered this year, check class schedule.

**TEC 112A Applied Math II: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of TEC 112.

Prerequisite(s): MAT 092 or required score on the mathematics assessment test or TEC 111.

Information: TEC 112A, 112B, and 112C together constitute TEC 112.

Offered: May not be offered this year, check class schedule.

**TEC 112B Applied Math II: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of TEC 112.

Prerequisite(s): TEC 112A.

Information: TEC 112A, 112B, and 112C together constitute TEC 112.

Offered: May not be offered this year, check class schedule.

**TEC 112C Applied Math II: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of TEC 112.

Prerequisite(s): TEC 112B.

Information: TEC 112A, 112B, and 112C together constitute TEC 112.

Offered: May not be offered this year, check class schedule.

**TEC 113 Problem Solving for Electronics and Optics**

3 credit hours/ 3 periods (3 lec.)

Problem solving for electronics and optics. Includes basic trigonometry and complex numbers used in AC circuit theory, logarithmic and exponential functions, basic mathematical formulae pertaining to fundamental understanding of optics, basic optics math such as Snell's law, Malus' law, Brewster's law, critical angle calculations, total internal reflection, and numerical aperture.

Prerequisite(s): MAT 122 or TEC 112 or required score on the mathematics assessment test.

Information: Same as MAT 113.

Offered: Fall.

**TEC 114 Mathematics for Optics**

2 credit hours/ 2 periods (2 lec.)

Basic mathematical formulae pertaining to fundamental understanding of optics. Includes college algebra and trigonometric functions. Also includes basic optics math such as Snell's law, Malus' law, Brewster's law, critical angle calculations, total internal reflection and numerical aperture.

Prerequisite(s): TEC 113.

Offered: May not be offered this year, check class schedule.

**TEC 116 Optical Shop Protocol and Inspection Standards**

2 credit hours/ 3 periods (1 lec., 2 lab)

Typical procedures and safety requirements of the optical industry. Includes terminology used in the field of optics pertaining to ISO and mil specifications, safe handling of optical components and assemblies, lasers, lamps, power devices, sharp edges, equipment, and protective eyewear and clothing. Also includes identifying components and coatings, clean room protocol, and proper handling of optical assemblies and equipment.

Offered: May not be offered this year, check class schedule.

**TEC 117 Optical Assembly Techniques**

3 credit hours/ 4 periods (2 lec., 2 lab)

Fundamental procedures used during the assembly of optical equipment. Includes use of epoxies and special adhesives during assembly, basic vibration isolation, mounting techniques, inspection of incoming subassemblies, and proper methods of disassembly. Also includes thermal and vibrational considerations as applied to assembly of systems.

Recommendation: Completion of TEC 116 before enrolling in this course.

Offered: Spring.

**TEC 121 Basic Electric and Magnetic Properties**

3 credit hours/ 3 periods (3 lec.)

Introduction to alternating current (AC), direct current (DC), and magnetic circuit theory. Includes basic electricity, electrical and hand tool safety, representation of units, basic direct current and circuits, power and energy, input and output impedance, the oscilloscope and functions generator, alternating current, and transients. Also includes basic overview of magnetic considerations, inductors and capacitors in AC circuits, unregulated power supplies, schematic and block diagrams, and compilation of units and conversion factors.

Prerequisite(s): TEC 112 or MAT 122.Corequisite(s): TEC 121LB

Offered: Fall.

**TEC 121A Basic Electric and Magnetic Properties: Module A**

2 credit hours/ 3 periods (1.5 lec., 1.5 lab)

Constitutes approximately the first one-half of TEC 121.

Prerequisite(s): TEC 112 or MAT 122.

Information: TEC 121A and 121B together constitute TEC 121.

Offered: May not be offered this year, check class schedule.

**TEC 121B Basic Electric and Magnetic Properties: Module B**

2 credit hours/ 3 periods (1.5 lec., 1.5 lab)

Constitutes approximately the second one-half of TEC 121.

Prerequisite(s): TEC 121A.

Information: TEC 121A and 121B together constitute TEC 121.

Offered: May not be offered this year, check class schedule.

**TEC 121LB Basic Electric and Magnetic Properties Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 121.

Corequisite(s): TEC 121

Offered: Fall.

**TEC 122 Applied Semiconductor Devices**

3 credit hours/ 3 periods (3 lec.)

Basic semiconductor theory and applications. Includes measurement, component selection, effects of the environment on components, component protection, and applications. Also includes diodes, transistors, integrated circuits with operational amplifiers, and regulated power supplies.

Prerequisite(s): TEC 113 and 121.Corequisite(s): TEC 122LB

Offered: Spring.

**TEC 122LB Applied Semiconductor Devices Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 122.

Corequisite(s): TEC 122

Offered: Spring.

**TEC 123 Digital Circuits and Computers**

3 credit hours/ 3 periods (3 lec.)

Introduction to the theory, operation, and application of digital components used in combinational and sequential logic. Includes number systems, boolean algebra, gates and invertors, digital measurements and test equipment, memory, error detection, convertors, programmable logic arrays, microprocessor basics, and technical information.

Corequisite(s): TEC 123LB

Offered: Fall.

**TEC 123LB Digital Circuits and Computers Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 123.

Corequisite(s): TEC 123

Offered: Fall.

**TEC 124 Modern Electronic Communications**

4 credit hours/ 6 periods (3 lec., 3 lab)

Introduction to electronic communication circuits and methodologies in transmitters and receivers. Includes history and trends in communications technology, the electromagnetic spectrum, resonant and antiresonant circuits, coupling, lumped filters, behavior of devices amplifiers, receiver and transmitter fundamentals, signal sources, and safety and regulations.

Prerequisite(s): TEC 113, 121 and 125.Recommendation: Concurrent enrollment in TEC 122.

Offered: May not be offered this year, check class schedule.

**TEC 125 AC Networks with Phasors**

3 credit hours/ 3 periods (3 lec.)

Applications of trigonometry and the algebra of complex numbers to AC circuits safety, troubleshooting, analysis, measurement, and design. Includes phasors, transfer functions, three phase power, filters, concepts of Fourier analysis, impedance matching, RLC circuits, waveshaping, and transmission lines at high AC frequencies.

Prerequisite(s): TEC 113 and 121.Corequisite(s): TEC 125LB

Offered: Spring.

**TEC 125LB AC Networks with Phasors Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 125.

Corequisite(s): TEC 125

Offered: Spring.

**TEC 126 Electronics Construction and Assembly**

3 credit hours/ 4 periods (2 lec., 2 lab)

Basic skills working on electronic equipment. Includes soldering and desoldering, drawing schematic diagrams, printed circuit board (PCB) construction, wire wrapping, wiring and cabling construction and chassis construction.

Prerequisite(s): TEC 121.

Offered: Fall.



**TEC 127 Printed Circuit Board Solder Assembly**

3 credit hours/ 5 periods (1 lec., 4 lab)

Procedures and skills required for assembling components and for high reliability soldering of these components on printed circuit boards to appropriate military specifications. Includes defect recognition, component preparation, component recognition, installation and high reliability soldering of these components to a printed circuit board.

Offered: Spring.

**TEC 128 Electronic Measurements**

2 credit hours/ 2 periods (2 lec.)

Techniques to perform measurements on passive and active component circuits. Includes measurement standards, types of meters, parameters of passive and active devices, harmonic and inter-modulation distortion, radio frequency modulation, operation and measurements of the oscilloscope, and the distortion analyzer.

Prerequisite(s): TEC 122 and 125.Corequisite(s): TEC 128LB

Offered: Spring.

**TEC 128LB Electronic Measurements Lab**

1 credit hour/ 2 periods (2 lab)

This is the Lab portion of TEC 128.

Corequisite(s): TEC 128

Offered: Spring.

**TEC 130 Computer Assembly and Testing**

3 credit hours/ 3 periods (3 lec.)

Computer system assembly, set-up, and start-up. Includes building a personal computer, installing the circuit boards, power supply, and disk drives. Also includes system testing and troubleshooting, configuring for different operating systems, tools and equipment safety, use of diagnostic and support software, peripheral connections, and component replacement.

Corequisite(s): TEC 130LB

Offered: Fall.

**TEC 130LB Computer Assembly and Testing Lab**

1 credit hour/ 2 periods (2 lab)

This is the Lab portion of TEC 130.

Corequisite(s): TEC 130

Offered: Fall.

**TEC 132 Computer Systems Servicing**

3 credit hours/ 3 periods (3 lec.)

Advanced computers servicing and peripherals installation. Includes an introduction to computer servicing, laser and ink-jet printers, troubleshooting of printers, safety and troubleshooting of monitors, floppy disk drives, hard disk drives/optical drives, operating systems, application programs, and network basics.

Prerequisite(s): TEC 130.Corequisite(s): TEC 132LB

Offered: Spring.

**TEC 132LB Computer Systems Servicing Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 132.

Corequisite(s): TEC 132

Offered: Spring.

**TEC 140 Geometric Optics**

2 credit hours/ 2 periods (2 lec.)

Exploration of how light moves through an optical system. Includes reflection, refraction, systems considerations, measurement of paraxial parameters, application of geometric optics, software for geometric design.

Prerequisite(s): TEC 113.

Information: This course taken in addition to TEC 141 provides a basis for all 200 level courses in optics.

Offered: Spring.

**TEC 141 Wave Optics**

3 credit hours/ 3 periods (3 lec.)

Exploration of the wavelike nature of light and how light interacts with matter. Includes the dual nature of light, the mathematics of wave motion, polarization, interference effects, diffraction, coherence, and Fourier optics.

Prerequisite(s): TEC 140.Corequisite(s): TEC 286

Information: This course taken in addition to TEC 140 provides a basis for all 200 level courses in optics.

Offered: Fall.

**TEC 151 Information Transfer in Technology**

2 credit hours/ 2 periods (2 lec.)

Information transfer in metrology, data collection, data description, and analysis. Includes the representation of systems and processes, an introduction to components, symbols, and diagrams. Also includes the description of

equipment and parts, the use of technical information sources, methods of troubleshooting, technical note-taking and technical telephone/computer communications.

Offered: May not be offered this year, check class schedule.

**TEC 160 Microcomputers and Programming Techniques**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to microcomputer operation. Includes terminology, reading and understanding specifications, system start up, disk operations, programming simple electronic problems. Also includes an introduction to assembly language and number systems.

Prerequisite(s): MAT 092 or TEC 111.

Information: Prerequisite maybe waived with consent of instructor.

Offered: Fall.

**TEC 170 Foundations of Improvement Technology**

3 credit hours/ 3 periods (3 lec.)

Statistical thinking, systems thinking, psychology, and theory of knowledge for the continuous improvement of processes in technician training and work. Includes team dynamics, introductory control charting, and basic design of experiments concepts. Also includes techniques for teams to identify and prioritize improvement opportunities, represent and analyze important processes, and identify feasible routes to achieve improvement and excellence in technical training and work.

Offered: May not be offered this year, check class schedule.

**TEC 171 Statistical Process Control and Experimentation**

3 credit hours/ 3 periods (3 lec.)

Basic statistical control and experimentation for technicians. Includes process representations, data, data collection, organizational tools, basic data descriptions, probability distributions and their properties, basic control charts, process capability, experimental designs, and software.

Prerequisite(s): TEC 113.

Offered: Spring.

**TEC 182 Fundamentals of Semiconductor Manufacturing Chemistry & Safety**

3 credit hours/ 3 periods (3 lec.)

Fundamentals of chemistry with emphasis on chemical safety in the semiconductor manufacturing workplace. Includes chemical principles, calculations, terminology, uses of chemicals, types of hazards, safeguards, regulations, and basic first aid.

Offered: May not be offered this year, check class schedule.

**TEC 221 Linear Devices**

3 credit hours/ 5 periods (2 lec., 3 lab)

Linear devices in electronic systems. Includes operational amplifiers, measurement, specification, selection, troubleshooting, and theory of linear devices. Includes power requirements and the means to obtain necessary power.

Prerequisite(s): TEC 122 and 125.

Offered: Fall.

**TEC 222 Electromechanical Devices and Systems**

3 credit hours/ 3 periods (3 lec.)

Prime movers encompassing DC motors, AC motors, synchros, stepper motors, and fluid motors. Includes control systems and the utilization of electronic devices in electromechanical control. Also includes mechanical components of electromechanical systems, electronic components used in motor control systems, sensors, transducers, relays, and solenoids.

Prerequisite(s): TEC 122, 125 and 221.Corequisite(s): TEC 222LB

Offered: Spring.

**TEC 222LB Electromechanical Devices and Systems Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 222.

Corequisite(s): TEC 222

Offered: Spring.

**TEC 225 Fluid Devices and Automated Systems**

2 credit hours/ 2 periods (2 lec.)

Application and control of fluid devices using programmable logic devices. Includes microprocessors, software, ladder logic and diagrams, programmable logic controllers (PLCs), and variety of input/output devices used in the automated manufacturing and test environments. Also includes safety and basic physical principles or laws governing the operation of pneumatic and hydraulic devices.

Prerequisite(s): TEC 101, 123 and 222.Corequisite(s): TEC 225LB

Offered: Spring.

**TEC 225LB Fluid Devices and Automated Systems Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 225.

Corequisite(s): TEC 225

Offered: Spring.

**TEC 226 Integrated System in Semiconductor Manufacturing**

4 credit hours/ 6 periods (3 lec., 3 lab)

Integration of chemical, computer, electronic, electromechanical, fluidic, and optical components to duplicate or simulate systems in the semiconductor manufacturing workplace. Includes process analysis, technical communications, metrology and data collection, statistics, troubleshooting and team problem solving, safety, statistical process control and experimental design, system assembly, reliability, test, and cleanroom procedures.

Prerequisite(s): TEC 221, 222, 225, 272, and 274.

Offered: May not be offered this year, check class schedule.

**TEC 227 Communication and Information Transmission Systems**

3 credit hours/ 3 periods (3 lec.)

Introduction to electronic communications and information transmission. Includes cable, RF point to point, laser, fiber, satellite, transponder, and cellular telephone systems, and computer systems protocols.

Prerequisite(s): TEC 122, 123, 124 and 125.Corequisite(s): TEC 227LB

Offered: May not be offered this year, check class schedule.

**TEC 227LB Communication and Information Transmission Systems Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 227.

Corequisite(s): TEC 227

Offered: May not be offered this year, check class schedule.

**TEC 228 RF and Microwave Devices**

3 credit hours/ 3 periods (3 lec.)

Properties, applications, measurements, and specifications of electronic communications components and systems at RF and microwave frequencies. Includes an overview, RF components, cellular phone devices, satellite devices, measurements, and code of federal regulations.

Prerequisite(s): TEC 122, 124, 125 and 221.Corequisite(s): TEC 228LB

Offered: May not be offered this year, check class schedule.

**TEC 228LB RF and Microwave Devices Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 228.

Corequisite(s): TEC 228

Offered: May not be offered this year, check class schedule.

**TEC 229 Integrated Systems in Telecommunications**

4 credit hours/ 6 periods (3 lec., 3 lab)

Overview of communications. Includes types of systems, importance of specifications, installation, tests, measurements, installation maintenance, repair, systems documentation, and common emergencies.

Prerequisite(s): TEC 228.

Offered: May not be offered this year, check class schedule.

**TEC 230 Peer-To-Peer Networking and Network Cabling Fundamentals**

3 credit hours/ 3 periods (3 lec.)

Introduction to basic networking concepts and cabling standards. Includes the OSI model of networking, types of networking, multi-user vs. single-user programs, network security, type of connections, and type of cabling.

Prerequisite(s): TEC 132.Corequisite(s): TEC 230LB

Information: Prerequisite maybe waived with consent of instructor.

Offered: Spring.

**TEC 230LB Peer-To-Peer Networking and Network Cabling Fundamentals Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 230.

Corequisite(s): TEC 230

Offered: Spring.

**TEC 232 Dedicated Server Networks**

3 credit hours/ 3 periods (3 lec.)

Dedicated file server networking technology using industry standard network operating systems. Primary NOS includes NetWare server installation, configuration, maintenance, and operation. Also includes installation of network interface card, user accounts, directories, backups, permissions, printer servers, printer queues, printer definitions, printer configurations, and remote printing.

Prerequisite(s): TEC 230.Corequisite(s): TEC 232LB

Offered: Fall.

**TEC 232LB Dedicated Server Networks Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 232.

Corequisite(s): TEC 232

Offered: Fall.

**TEC 234 Microcomputer Repair**

2 credit hours/ 2 periods (2 lec.)

Repair and replacement of microcomputer components. Includes microprocessors and system architecture. Also includes tools, test equipment, handshaking, and troubleshooting.

Prerequisite(s): TEC 122, 123, 124, 125, 132.Corequisite(s): TEC 234LB

Offered: May not be offered this year, check class schedule.

**TEC 234LB Microcomputer Repair Lab**

2 credit hours/ 4 periods (4 lab)

This is the Lab portion of TEC 234.

Corequisite(s): TEC 234

Offered: May not be offered this year, check class schedule.

**TEC 235 Interconnecting Network Devices**

3 credit hours/ 4 periods (2 lec., 2 lab)

Focus on installation and usage of switches and routers connected in Local-Area Networks (LANs) and Wide-Area Networks (WANs) at small to medium network sites. Includes introduction to networks, cabling, Cisco IOS, interconnecting catalyst switches, interconnecting Cisco routers, and extending the network WANs.

Prerequisite(s): TEC 132.

Offered: Spring.

**TEC 236 Underpinnings of the Internet**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to the Internet, web servers, and its related services. Includes development of the Internet, connecting to the Internet, File Transfer Protocol (FTP) and Telnet, electronic mail-the basic Internet tool, hypertext and the World Wide Web, creating web documents in HTML, and web servers.

Prerequisite(s): TEC 130.

Offered: Spring.

**TEC 237 Contemporary Client/Server Computing**

2 credit hours/ 2 periods (2 lec.)

Introduction to client/server computing. Includes history and overview of client/server computing, client/server building blocks, clients, servers, and operating systems, users, groups, profiles, and policies, server resources, sequential query language database servers, and client/ server groupware.

Prerequisite(s): TEC 232 and 235.Corequisite(s): TEC 237LB

Offered: Spring.

**TEC 237LB Contemporary Client/Server Computing Lab**

1 credit hour/ 2 periods (2 lab)

This is the Lab portion of TEC 237.

Corequisite(s): TEC 237

Offered: Spring.

**TEC 239 UNIX/Linux Support and Service**

4 credit hours/ 6 periods (2 lec., 4 lab)

Introduction to UNIX/Linux maintenance, operation, connectivity, and administrative functions with main emphasis on hardware and troubleshooting techniques. Also includes security, commands, and file systems.

Prerequisite(s): TEC 230.

Offered: Fall.

**TEC 250 Digital Devices**

3 credit hours/ 3 periods (3 lec.)

Digital integrated circuits, primarily TTL. Includes power requirements, propagation delay, input and output electrical characteristics, counters, latches, multiplexors, decoders, flip-flops and other digital devices. Also includes digital circuit troubleshooting.

Prerequisite(s): TEC 122, 123.Corequisite(s): TEC 250LB

Offered: Fall.

**TEC 250LB Digital Devices Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 250.

Corequisite(s): TEC 250

Offered: Fall.

**TEC 251 Analog Circuits**

3 credit hours/ 3 periods (3 lec.)

Advanced analog circuits used in current digital systems. Includes logic and number system review, methods of representing, logical functions, combinatorial logic families, power supply requirements, input characteristics, outputs, and voltages.

Prerequisite(s): TEC 221.Corequisite(s): TEC 251LB

Offered: Spring.

**TEC 251LB Analog Circuits Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 251.

Corequisite(s): TEC 251

Offered: Spring.

**TEC 255 Microprocessor I**

3 credit hours/ 3 periods (3 lec.)

Introduction to microprocessor operation. Includes microprocessor basics, addressing modes, introduction to programming, architecture and instruction set, stack operations, double accumulator and subroutine instructions, and input/output (I/O) and interrupt operations.

Prerequisite(s): TEC 123.Corequisite(s): TEC 255LB

Offered: May not be offered this year, check class schedule.

**TEC 255LB Microprocessor I Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 255.

Corequisite(s): TEC 255

Offered: May not be offered this year, check class schedule.

**TEC 256 Microprocessor II**

3 credit hours/ 3 periods (3 lec.)

In-depth study of microprocessor interfacing applications. Includes programmable interface devices, serial data communications, memory, programmable timers, A/D and D/A converter interfacing, control devices/circuits, and troubleshooting.

Prerequisite(s): TEC 255.Corequisite(s): TEC 256LB

Offered: May not be offered this year, check class schedule.

**TEC 256LB Microprocessor II Lab**

1 credit hour/ 3 periods (3 lab)

This is the Lab portion of TEC 256.

Corequisite(s): TEC 256

Offered: May not be offered this year, check class schedule.

**TEC 272 Semiconductor Manufacturing Processes I**

3 credit hours/ 3 periods (3 lec.)

Study of semiconductor manufacturing. Includes crystal growth, wafer preparation, wafer fabrication, oxidation, diffusion and ion implantation with attention to affiliated processes, equipment, materials, key concepts, measurements, safety, contamination control, tests, and terminology.

Prerequisite(s): TEC 103 and 171.

Offered: Fall.

**TEC 273 Semiconductor Manufacturing Process II**

3 credit hours/ 3 periods (3 lec.)

Continuation of TEC 272. Includes photolithography (photomasking and etching), deposition, packaging, wafer test, evaluation, and process yields with attention to affiliated processes, equipment, materials, key concepts, measurements, safety, contamination control, tests, and terminology.

Prerequisite(s): TEC 272.

Offered: May not be offered this year, check class schedule.

**TEC 274 Vacuum Systems and Power RF**

2 credit hours/ 2 periods (2 lec.)

Basic gas laws, theory, definitions, and applications of power RF in manufacturing industries. Includes the atmosphere, vacuums, pressure, gas flow, removal of gases, phases/states of matter, heat transfer in vacuum, vacuum gauges, rough and vacuum pumps, leak detection, components and materials, and vacuum lab procedures. Also includes heating effects of RF, vacuum tube principles, plasmas, RF generator and etch systems, power supply considerations, measurements and calibrations, and safety.

Prerequisite(s): TEC 122 and 125.Corequisite(s): TEC 274LB

Offered: Spring.

**TEC 274LB Vacuum Systems and Power RF Lab**

1 credit hour/ 2 periods (2 lab)

This is the Lab portion of TEC 274.

Corequisite(s): TEC 274

Offered: Spring.

**TEC 284 Calibration of Optical Systems**

3 credit hours/ 5 periods (1 lec., 4 lab)

Applications of specialized equipment and analytical procedures for performance evaluation and calibration of optical systems in the optics industry. Includes radiometric entities and figures of merit used to describe system performance, NIST traceability for radiation standards and associated hardware. Also includes use of point sources, Jones sources, extended area sources, and collimated sources related to use in calibration, measurement of noise and statistical methods of noise cancellation to improve signal to noise ratios.

Prerequisite(s): TEC 141.

Offered: Fall.

**TEC 286 Fiber Optics Installation and Testing**

3 credit hours/ 4 periods (2 lec., 2 lab)

Installation and use of optical fibers and related equipment in the optical industry. Includes procedures such as terminating and coupling of fiber, comparison of fiber types and testing of fibers to see if the coupling and terminations are within specifications. Also includes applications of fiber optics, such as their use in medicine, communications, aviation and imaging devices.

Prerequisite(s): TEC 141 or concurrent enrollment.

Offered: Spring.

**TEC 287 Laser Fundamentals**

3 credit hours/ 4 periods (2 lec., 2 lab)

Lasers and how they are built and used in industry. Includes the principles of laser operation, characteristics of laser light, and safe handling and servicing of lasers. Also includes some basic quantum mechanics, cavity design, unit assembly techniques, and use of high voltage power supplies needed for lasers to operate.

Prerequisite(s): TEC 141.

Offered: Spring.

**TEC 288 Optical Testing**

4 credit hours/ 6 periods (2 lec., 4 lab)

Use of common techniques and equipment for the testing of optical systems and components. Includes how interferometry and various profilers are used to examine surface features. Also includes other, non-interferometric tests and examination of the theory behind each.

Prerequisite(s): TEC 141.

Offered: Spring.

**TEC 290 Technology Education Field Experience**

1-6 credit hours/ 5-30 periods (5-30 lab)

Participation in a high technology placement to provide experience in the practical application of classroom instruction. Includes practical experience, observation of business practices, job skills preparation, and an emphasis on work-place behaviors.

Information: Consent of instructor is required before enrolling in this course. May be taken two times for a maximum of six credit hours.

Offered: Fall, Spring.

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**THEATER**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**THE 103 Voice and Movement for the Actor I**

1 credit hour/ 2 periods (2 lab)

Principles and practice of beginning voice and movement skills for the actor. Includes phonetics, physical isolation and awareness exercises.

Information: May be taken two times for a maximum of two credit hours.

Offered: Fall, Spring.

**THE 104 Voice and Movement for the Actor II**

1 credit hour/ 2 periods (2 lab)

Continuation of THE 103. Includes development and practice of stage dialects and physicalization of character.

Prerequisite(s): THE 103.

Information: May be taken two times for a maximum of two credit hours.

Offered: Fall, Spring.

**THE 105 Theater Appreciation**

3 credit hours/ 3 periods (3 lec.)

Survey of the nature and history of theater. Includes play production as an art form and multicultural media of communication. Also includes basic elements of production, the roles of key personnel from playwrights to critics, major forms and examples of dramatic literature, varied acting styles, and trends in modern theater.

Prerequisite(s): WRT 100, 101 or 102.

Information: Student are expected to attend and critique three theatrical performances. Students may also be required to participate in PCC theatre productions for additional credit.

Offered: Fall, Spring, Summer.

**THE 109 Introduction to Chicano Theatre Arts**

2 credit hours/ 3 periods (1 lec., 2 lab)

Survey of the use of Chicano theatre as a tool for social change in the United States from the 1960's to the present. Includes introduction to acting and performance techniques, analysis and readings from significant Chicano theatre pieces, and examination of Chicano theatre elements such as play structure, dramatic forms, techniques and styles.

Recommendation: Knowledge of the Spanish language before enrolling in this course.

Offered: May not be offered this year, check class schedule.



**THE 110 Movement/Dance for Actors**

2 credit hours/ 3 periods (1 lec., 2 lab)

Physical dynamics of actor training. Includes relaxation and warm-up techniques, vocabulary for movement, use of movement in developing acting skills, and improvisation for scenes and text analysis. Also includes execution of basic dance and movement, as well as the history of dance and movement for musical theater, and exercises.

Offered: Fall, Spring.

**THE 111 Stagecraft**

3 credit hours/ 3 periods (3 lec.)

Principles and the practical application to the operation and techniques of various types of stages and stage scenery. Includes theater organization, geography, shop safety, tools and hardware applications, historic overview, construction design, three-dimensional scenery, and properties research. Also includes acquisition, maintenance, costume design, stage rigging systems, paint, materials handling, measuring, construction, assembly, finishing, rigging, and painting techniques.

Corequisite(s): THE 113 THE 113.

Offered: Fall, Spring.

**THE 113 Stagecraft Crew**

1 credit hour/ 3 periods (3 lab)

Preparing, organizing, setting up, running and shifting of theatrical sets, properties and costumes for approved theatrical productions.

Corequisite(s): THE 111

Offered: Fall, Spring.

**THE 115 Make-Up**

1 credit hour/ 2 periods (2 lab)

Principles and practice of straight and character make-up under various conditions. Includes special effects, clown make-up and principles of mask-making.

Offered: Fall.

**THE 118 Basic Theater Graphics**

3 credit hours/ 3 periods (3 lec.)

Principles and practice of graphic skills necessary in the planning of theatrical productions. Includes drafting and mechanical drawing, perspective drawing, and watercolor painting techniques.

Offered: Spring.

**THE 125 Theater Production**

2 credit hours/ 6 periods (6 lab)

The practical application of exploratory learning within an ensemble setting. Includes the relating of ideas and possibilities to practical methods, skills and structure of Theatrical Production.

Information: May be taken four times for a maximum of eight credit hours. Consent of instructor required before enrolling in this course.

Offered: Fall, Spring.

**THE 135 Stage Combat**

2 credit hours/ 4 periods (1 lec., 3 lab)

A basic study in the execution of staged violence for practical use in the theater productions. Includes unarmed fighting and armed combat.

Offered: May not be offered this year, check class schedule.

**THE 140 History of Theater to the 18th Century**

3 credit hours/ 3 periods (3 lec.)

Survey of theater, drama and audiences from its origins to the late 18th century. Includes changes in theaters, stages and theatrical conventions, and representative plays from each period.

Offered: Fall.

**THE 141 History of Theater Since the 18th Century**

3 credit hours/ 3 periods (3 lec.)

Survey of theater, drama and audiences from the 18th century to the present. Includes changes in theaters, stages and theatrical conventions, and representative plays from each period.

Offered: Spring.

**THE 149 Introduction to Acting I**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to performance techniques and the development of physical skills for effective performance. Includes techniques of acting and characterization.

Offered: Fall, Spring.

**THE 151 Introduction to Acting II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Continuation of THE 149. Includes methods of developing and projecting a character's physical scope, emotional inner life, and the employment of sub-text (unspoken thoughts) in performances. Also includes techniques for character and script analysis.

Prerequisite(s): THE 103 or concurrent enrollment and THE 149.

Offered: Fall, Spring.

**THE 210 Screen Acting**

2 credit hours/ 3 periods (1 lec., 2 lab)

Introduction to film and television acting techniques. Includes special technical aspects of acting before a camera, performance preparation, and conduct of performance.

Offered: Fall, Spring.

**THE 215 Stage Directing**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to the basic principles of stage directing. Includes historical overview, script analysis, directorial script notation and concepts for specific plays, research analysis, casting and production practices, choosing production support material, presentation of short theatrical productions, final analysis, and submitting research notes.

Offered: May not be offered this year, check class schedule.

**THE 220 Stage Lighting**

3 credit hours/ 3 periods (3 lec.)

Principles of stage lighting design and practice. Includes historical context, electricity and lamps, fixtures, dimming equipment, control equipment, color media use and handling, design techniques, special effects and set up, and safety procedures. Also includes care, maintenance, proper use of lighting equipment, organization of lighting work, and operation.

Corequisite(s): THE 222

Offered: Fall.

**THE 222 Stage Lighting Crew**

1 credit hour/ 3 periods (3 lab)

Organizing, setting up and operating of stage lighting for approved theatrical productions.

Corequisite(s): THE 220

Offered: Fall.

**THE 223 Scene Design**

3 credit hours/ 5 periods (2 lec., 3 lab)

Principles of scene design for various types of stage and models of productions. Includes historical context, theater architecture, scenic elements, design process and research, development of working drawings, perspective rendering, color use, period styles in furniture and architecture, and script analysis. Also includes cost estimates, material choices, advanced construction techniques, paint mixing and application techniques, stage furniture overview, and set dressing and finishing.

Corequisite(s):

Offered: Spring.

**THE 245 Principles of Dramatic Structure**

3 credit hours/ 3 periods (3 lec.)

Examination of the structural elements of major dramatic forms and styles. Includes reading and viewing of representative plays and analysis of their structures in relationship to modes of presentation and the resulting effects.

Offered: Fall.

**THE 250 Intermediate Acting I**

3 credit hours/ 4 periods (2 lec., 2 lab)

Intermediate Acting I Theory and practice of creating sustained and logical character portrayals using all types of dramatic literature from various cultures. Includes rehearsal and performances of scenes in representational styles and practice in auditioning techniques.

Prerequisite(s): THE 103 and 111 or concurrent enrollment, and THE 149.

Offered: Fall.

**THE 251 Intermediate Acting II**

3 credit hours/ 4 periods (2 lec., 2 lab)

Performance-oriented class focuses on the practice and theory of pre-realistic styles of acting, and focuses on Shakespeare through the use of verse and prose. Includes the performance and analysis of Commedia del Arte, Moliere (Neo-classicism), and Restoration.

Prerequisite(s): THE 104 and 111 or concurrent enrollment, and THE 151 or 250.

Offered: Spring.

**THE 296 Independent Studies in Theater**

1-4 credit hours/ 3-12 periods (3-12 lab)

Students work at various assigned tasks in theatrical settings under the guidance of an instructor. Includes the opportunity for the student to design his/her own project with the instructor's approval.

Information: May be taken eight times for a maximum of eight credit hours.

Offered: Fall, Spring.

## THERAPEUTIC MASSAGE

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### TMA 101 Introduction to Massage Therapy

3 credit hours/ 3 periods (3 lec.)

Survey of massage therapy practice including history, overview of bodywork systems, benefits and indications of massage, and legal requirements of practice in Arizona.

Offered: Fall, Spring.

### TMA 120 Professionalism and Ethics for Massage Therapists

2 credit hours/ 2 periods (2 lec.)

Overview of the ethics and professionalism related to an effective, successful touch therapy practice. Includes general ethical principles of practice, professional dress and conduct, boundaries and communication, and ethical business practices.

Offered: Spring.

### TMA 201IN Therapeutic Massage Practices I

6 credit hours/ 9 periods (3 lec., 6 lab)

Principles of professionalism, ethics, and legalities. Includes use of terminology related to massage therapy. Applications, indications, and contraindications of the nine strokes of Swedish massage. Study of the human osseous and muscular structure. Emphasis on normal movement patterns, origins, insertions, and functions of the muscular system.

*Prerequisite(s):* BIO 160 and TMA 101 with a grade of C or better.

Information: Completion of PSY 101, TMA 120 and WED 110 and 111 with a grade of C or better required before enrolling in this course. Course restricted to students admitted to program. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall.

### TMA 202IN Therapeutic Massage Practices II

6 credit hours/ 9 periods (3 lec., 6 lab)

Refined application of the nine strokes of Swedish massage and contraindications to avoid. Application of advanced principles and techniques of trigger point therapy, muscle energy technique, stretching, hydrotherapy protocols, hot and cold applications, reflexology, and corporate massage. Study of the human osseous and muscular structure. Emphasis on normal movement patterns and the origin, insertion, and function of the muscular system.

*Prerequisite(s):* TMA 201IN with a grade of C or better.

Information: Course restricted to students admitted to program. IN is the integrated version of the course with the lab and lecture taught simultaneously.

Offered: Fall.

### TMA 202LC Therapeutic Massage Practice Clinical Lab I

1 credit hour/ 3 periods (3 lab)

Students practice and perfect the application of fundamental Swedish Massage techniques in a supervised, supportive learning environment in an onsite clinical setting. Course reinforces massage theory and practice learned in TMA 201.

*Prerequisite(s):* Requires concurrent registration with TMA 202.

Offered: Fall.

### TMA 203IN Therapeutic Massage Practices III

6 credit hours/ 9 periods (3 lec., 6 lab)

Refinement and integration of technical skills, psychosocial competencies, and role identity. Exploration of techniques to assess and facilitate range of motion and functions; purpose, benefits, indications, and contraindications of therapeutic massage for specific neuro-musculoskeletal disorders/injury and special populations. Application of massage techniques with therapist's pre- and post-client evaluations of the client. Adaptation of massage techniques for special populations.

*Prerequisite(s):* TMA 202IN, 210, and 211 with a grade of C or better.

Information: Course restricted to students admitted to program. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Spring.

### TMA 203LC Therapeutic Massage Practice Clinical Lab II

1 credit hour/ 3 periods (3 lab)

Students practice and perfect the application of Swedish and Deep Tissue massage techniques in a supervised, supportive learning environment in an onsite clinical setting. Course reinforces massage theory and practice learned in TMA 202.

*Prerequisite(s):* Requires concurrent registration with TMA 203.

Offered: Spring.

### TMA 210 Fundamentals of Kinesiology

3 credit hours/ 4 periods (2 lec., 2 lab)

The course will provide a survey of the biology of movement including a review of the skeletal and muscular systems, planes of movement and terms of anatomical references; structure and functions of joints; origins, insertions and actions of muscles of the trunk and limbs. Lab portion will include demonstration and analysis of normal and abnormal movement.

*Prerequisite(s):* BIO 160.

Offered: Spring.

### TMA 211 Introduction to Human Systems Pathology

3 credit hours/ 3 periods (3 lec.)

The course will introduce the student to basic disease processes and common pathologies associated with each of the organ systems.

*Prerequisite(s):* BIO 160.

Offered: Fall.

### TMA 290LC Therapeutic Massage Clinical

4 credit hours/ 10 periods (10 lab)

Application and integration of fundamental and advanced massage techniques in various settings for various purposes and populations. Includes Swedish, Deep Tissue, Pain and Injury Management, Stretching, Range of Motion, Asian, Energy and Hospital-Based massage therapies.

*Prerequisite(s):* TMA 203 with a C or better.

Information: Course restricted to students admitted to program. For a portion of the class, students may arrange with the instructor to practice in a specialized clinical concentration for a specified period of time at a location authorized by the college.

Offered: Spring.

## TOHONO O'ODHAM

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### THO 101 Elementary Tohono O'odham I

4 credit hours/ 4 periods (4 lec.)

Skill development to provide proficiency in basic communication in the Tohono O'odham language. Includes listening, speaking, reading, and writing. Also includes an emphasis on examination of Tohono O'odham cultural traditions.

Offered: Fall.

### THO 102 Elementary Tohono O'odham II

4 credit hours/ 4 periods (4 lec.)

Continuation of THO 101. Includes increased proficiency in listening, speaking, reading and writing and continued study of Tohono O'odham cultural traditions.

*Prerequisite(s):* THO 101.

Offered: Fall.

## TRANSLATION STUDIES

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### TRS 100 Survey of Translation and Interpretation Studies

3 credit hours/ 3 periods (3 lec.)

Professional, sociolinguistic, and cognitive aspects of translation and interpretation. Includes social justice goals and language policy for interpretation and translation, role of translators and interpreters, consecutive interpretation, role of norms in legal translation, conservation of meaning, register, and style, meaning of translation, health care interpretation and translation, and business and technical translation.

Offered: May not be offered this year, check class schedule.

### TRS 101 Introduction to Translation

3 credit hours/ 3 periods (3 lec.)

Principles and procedures for the translation of written materials. Includes an introduction to translation, translation preparation, translation procedures, and specialities, and work of the translator.

Offered: Fall.

### TRS 102 Spanish for Translation

4 credit hours/ 4 periods (4 lec.)

Analysis of the Spanish language from the translator's point of view. Includes the structure of Spanish, cultural and stylistic components, semantics, dialectal differences and interferences, and Lexical obstacles.

*Prerequisite(s):* SPA 254.

Offered: Spring.

### TRS 103 English for Translation

4 credit hours/ 4 periods (4 lec.)

Analysis of the English language from the translator's point of view. Includes the structure of English, cultural and stylistic components, semantics, standard English mechanics and punctuation, and metaphorical and idiomatic English.

*Prerequisite(s):* WRT 102.

Offered: Spring.

**TRS 120IN Technology for Translation and Interpretation**

2 credit hours/ 3 periods (1 lec., 2 lab)

Survey of the technological equipment that facilitates the work of the translator. Includes computers for transcription/translation, information distribution techniques, file transfer technologies, using the World Wide Web in translation and interpretation, and applied projects.

Prerequisite(s): CSA 101 and TRS 101.

Information: CSA 101 may be waived if computer applications experience is documented. See an instructor. IN is the integrated version of the course with lecture and lab taught simultaneously.

Offered: Fall.

**TRS 150 Survey of Translation Specialty Areas**

4 credit hours/ 4 periods (4 lec.)

Introduction to the translation specialty areas of health care, legal, literary, and commercial/business. Includes introduction to specialty areas, types of documents, elements and characteristics of specialty documents, resource development, ethical and legal restrictions, and development of translation subskills.

Prerequisite(s): TRS 102 and 103.

Offered: Fall.

**TRS 160 Translation in Specialty Areas**

4 credit hours/ 4 periods (4 lec.)

Principles and procedures for translating specialty area materials. Includes health care, legal, commercial/business, and literary translation exercises.

Prerequisite(s): TRS 120 and 150.

Offered: Spring.

**TRS 161 Medical Spanish/English Interpreting**

3 credit hours/ 3 periods (3 lec.)

Interpreting in a medical context. Includes interpreting in a medical setting, pronunciation of Spanish and English names and medical terms, Spanish and English medical terminology, bicultural medical communication, and regional dialects.

Information: This course assumes bilingual fluency in both English and Spanish.

Offered: Spring.

**TRS 202 Interpretation Techniques**

3 credit hours/ 3 periods (3 lec.)

Specific theories and practices in interpreting oral communication from English to Spanish and Spanish to English. Includes theories of interpretation, techniques of interpretation, interpretation strategies, interpretation procedures, and modes of interpretation.

Prerequisite(s): TRS 101, 102, and 103.

Information: Consent of instructor is required before enrolling in this course. See the TRS instructor or department chair for more prerequisite information.

Offered: Fall.

**TRS 203 Consecutive Interpretation and Sight Translation**

4 credit hours/ 6 periods (3 lec., 3 lab)

Essential modes of interpretation. Includes history and use, theory, interpreting skills development, sight translation skills, consecutive interpretation skills, and interpretation issues.

Prerequisite(s): TRS 102, 103 and 202.

Information: Consent of instructor may be obtained in lieu of prerequisite requirement.

Offered: Spring.

**TRS 270 Simultaneous Interpretation**

4 credit hours/ 4 periods (4 lec.)

Study and practice of simultaneous interpretation. Includes history and use, theory, interpreting skills development, simultaneous interpretation skills, and issues in simultaneous interpretation.

Prerequisite(s): TRS 202.

Offered: Spring.

**TRS 282 Advanced Project in Translation**

4 credit hours/ 5 periods (3 lec., 2 lab)

Engaging in a specialty area advanced project to produce a translated product. Includes agency/individual sponsor, translation goals, translating written documents, on-site and/or supervised training, and preparation for exit competency evaluation.

Prerequisite(s): TRS 160.

Offered: Fall.

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**TRAVEL INDUSTRY OPERATIONS**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**TVL 101 Introduction to the Travel Industry**

3 credit hours/ 3 periods (3 lec.)

Major components of travel products and careers. Includes travel industry and hospitality products, distribution of the travel product, and careers in the travel industry.

Offered: Fall, Spring.

**TVL 102 Computerized Reservation Systems**

3 credit hours/ 5 periods (2 lec., 3 lab)

Basic software training. Includes screen management, passenger name record (PNR), Sabre's FOX, PNR modifications, faring/pricing the completed PNR, booking and pricing hotels and rental cars.

Offered: Fall, Spring.

**TVL 103 Geography for the Tourism Professional**

3 credit hours/ 3 periods (3 lec.)

Examination of tourist attractions and applied physical geography of global tourism destinations. Students will choose three of six geographic areas on which to focus: North America, Latin America, Western Europe, Africa, East Asia, and South Pacific. Includes the Travel Institute's Destination Specialist Certification Exam in the geographic areas studied.

Offered: Fall, Spring.

**TVL 109 Survey of Leisure Products**

3 credit hours/ 3 periods (3 lec.)

Leisure travel components. Includes hotels, rental cars, AMTRAK, tours, and cruise accommodations.

Offered: Fall, Spring.

**TVL 121 Tourism Sales and Marketing**

3 credit hours/ 3 periods (3 lec.)

Concepts of selling techniques for the tourism professional. Includes phone and internet selling strategies as well as an introduction to listening skills, sales techniques, client behavior styles, closing the sale, legal aspects of the travel industry for inside, outside and home-base tourism professionals. Also includes concepts of tourism marketing and marketing techniques for the tourism professional, consumer behavior, strategies, and marketing elements.

Offered: Fall, Spring.

**TVL 211 Tour Direction and Tour Group Management**

3 credit hours/ 3 periods (3 lec.)

Introduction to the basic principles of guiding tours. Includes principles of tour group handling, tour group planning, tour guide basics, tour guide narration, tour guide procedures and challenges, and public speaking for the tour guide.

Offered: Fall, Spring.

**TVL 296 Independent Study in Travel/Tourism**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Independent studies projects or special interest areas in travel/tourism. Content to be determined jointly between student and instructor.

Information: May be taken three times for a maximum of nine credit hours.

Offered: Fall, Spring.

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**TRUCK DRIVER TRAINING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**TDT 101 Introduction to Trucking and First Aid**

3 credit hours/ 3 periods (3 lec.)

Overview and introduction to the operation of a tractor-trailer and basic first aid. Includes an overview of the history of trucking, control systems, vehicle systems, coupling and uncoupling, CPR and first aid, over the road management, and the process to follow in the job search.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 102 Driver Challenges and Air Brake System**

3 credit hours/ 3 periods (3 lec.)

Operation of the tractor-trailer and the practices required to meet financial obligations. Includes visual search and communications, basic control, speed and space management, pre-trip inspection, extreme driving, emergency maneuvers, air brakes, preventative maintenance, shifting, backing, accident procedures, money, management, and special rigs and refrigerated trailers.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.



**TDT 103 Intro to Hours of Service & Department. of Transport Regulations**

3 credit hours/ 3 periods (3 lec.)

Handling responsibilities that do not involve operating a vehicle. Includes hours of service requirements, trip planning, and team logs.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 104 Hazardous Materials/Department. of Transportation Regulations**

3 credit hours/ 3 periods (3 lec.)

Laws governing the transportation industry. Includes night operations, hazardous materials, Department of Transportation rules and regulations, and environment.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 105 Defensive Driving and Cargo Handling**

3 credit hours/ 3 periods (3 lec.)

Procedures for handling potentially dangerous situations and for handling of cargo. Includes visual search, hazard perception, satellite communication, electronic engines, driver safety, and cargo handling and documentation.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 106 Pre-Trip and Backing Skills**

1 credit hour/ 1.5 periods (.5 lec., 1 lab)

Vehicle inspection and backing a tractor-trailer. Includes pre-trip inspection, backing, straight line, 45 degrees dock/offset, parallel park, serpentine, and visual search.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 107 Basic Control**

1 credit hour/ 1.5 periods (.5 lec., 1 lab)

Building of skills required to maneuver a tractor-trailer. Includes engine start, instrument scan, proper gear start, steering position, mirror checks, rpm/range control, up shift progressive, down shift, double clutch, smooth braking, set parking brake, right hand turn, and left hand turn.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 108 Proficiency Development**

1 credit hour/ 1.5 periods (.5 lec., 1 lab)

Introduction to safe driving techniques. Includes skip and shift recovery, visual and traffic checks, speed management, lane control and change, merge and exit freeway, space management, and use of signals and horn.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 109 Extreme Driving Conditions**

1 credit hour/ 1.5 periods (.5 lec., 1 lab)

Advanced techniques of control and safe driving. Includes uphill start and roll back, up and down hill upshift, up and down hill downshift, adverse condition, curve and passing control and hazard.

Information: Admission the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 110 Introduction to Externship**

1 credit hour/ 1 period (1 lec.)

Overview and introduction to the operation of the company that will administer the externship of the trainee truck driver. Includes history of the company, company policies, and procedures for dispatch, payroll, insurance, requirements for logging, trip reporting, and paperwork.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 112 Preparation for the Commercial Driver License Exam**

5 credit hours/ 5 periods (5 lec.)

Information to prepare trainees to pass the Commercial Driver License exam and a Class A permit. Includes air brakes, pre-trip inspection, combination vehicle, and hazardous materials. Also includes information to manage speed effectively and respond to various road and weather conditions.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 113 Operation of a Tractor-Trailer**

2 credit hours/ 2 periods (2 lec.)

Techniques for the safe and efficient operation of a tractor-trailer. Includes coupling and uncoupling, backing, hazard perception, cargo handling, rules and regulations, hours of service, and trip planning and hours of service.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 114 Inspect and Operate a Tractor-Trailer**

5 credit hours/ 6 periods (4 lec., 2 lab)

Basic skills to inspect and operate a tractor-trailer safely. Includes pre-trip inspection, backing, basic control, visual search, progressive shifting, and communication.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 115 Safe Driving Techniques**

1 credit hour/ 3 periods (3 lab)

Safe driving techniques while developing driving proficiency. Includes space management, extreme driving, speed management, and hazard perception.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 116 Straight Truck and Bus Driver**

3 credit hours/ 3 periods (3 lec.)

Information to prepare the trainees to pass the Commercial Driver License (CDL) exam and obtain a class "B" permit. Includes CDL preparation, driving conditions, pre-trip inspection, air brakes, hazardous materials, and city map reading, hours of service, backing, cargo handling, and transporting passengers.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 117 Straight Truck and Bus Driver: Road and Range**

1 credit hour/ 3 periods (3 lab)

Techniques for the inspection and safe operation of a straight truck or bus. Includes pre-trip inspection, backing, basic control of left and right turns, progressive shifting, proficiency development, space and speed management, visual search and communication, extreme driving, and hazard perception.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 118 Basic Vehicle Operations and Commercial Driver's License Requirements**

5 credit hours/ 5 periods (5 lec.)

Basic methods of safety operating a combination vehicle. Includes the operation of the air brake system and uncoupling a tractor and trailer, cargo handling including hazardous materials, the proper method of conducting a pre-trip inspection, completion of braking maneuvers, and trip planning. Familiarization of the USDOT regulations including hours of service and Commercial Driver's Licensing requirements. Also includes method of managing life as professional driver, managing speed effectively and responding to road and weather conditions.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 119 Basic Driving Maneuvers**

3 credit hours/ 3 periods (3 lec.)

Demonstration and skill development of basic maneuvers of driving a combination vehicle. Includes driving proficiency development including control, backing, visual search, shifting, turning, space and speed management, and hazard perception. Successful completion of this class should prepare trainee for CDL license skill examination.

Prerequisite(s): TDT 118.

Information: Admission to the Truck Driver Training Program is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**TDT 120 Truck Driver Training Refresher**

3 credit hours/ 3 periods (3 lec.)

Overview of Truck Driver skill requirements. Includes a refresher of all range and road skills with instruction and demonstration: pre-trip and backing skills, basic control, proficiency development, and extreme driving conditions.

Information: Valid Commercial Driver's License and Department of Transportation physical and drug screen are required before enrolling in this course.

Offered: Fall, Spring, Summer.

**TDT 121 Hazard Awareness and Collision Avoidance for CDL Drivers**  
1 credit hour/ 1 period (1 lec.)  
Basic skills in hazard awareness and collision avoidance for current Commercial Driver's License (CDL) drivers. Includes defensive driving, speed management, night driving, extreme driving conditions, hazard awareness, emergency maneuver, dangerous cargo, and skid control.  
Information: A current Commercial Driver's License (CDL) is required before enrolling in this course.  
Offered: Fall, Spring, Summer.

**TDT 190 Truck Driver Training Externship**  
3 credit hours/ 15 periods (15 lab)  
Measured development of the entry-level driver and the employing company's achievement in promoting the new driver from trainee to solo operations. Includes objectives and guidelines to establish uniform progress, methodology, and the measurement of the essential skills necessary to all drivers.  
Information: Admission to the Truck Driver Training Program is required before enrolling in this course.  
Offered: May not be offered this year, check class schedule.

**TDT 190A Truck Driver Training Externship A**  
1 credit hour/ 5 periods (5 lab)  
Overview of truck driver training in an externship format. Includes primary training goals and an assessment of initial qualifications.  
Information: Admission to the Truck Driver Training Program is required before enrolling in this course.  
Offered: Fall, Spring, Summer.

**TDT 190B Truck Driver Training Externship B**  
1 credit hour/ 5 periods (5 lab)  
Overview of truck driver training in an externship format. Includes training the new driver, training materials, documentation of where to train, variety of driving experiences and conditions, vehicles and other equipment documentation, and duration of training. Also includes progressive advancement in skills and knowledge, specific training exercises, and periodic evaluation and remedial training for problem areas.  
Information: Admission to the Truck Driver Training Program is required before enrolling in this course.  
Offered: Fall, Spring, Summer.

**TDT 190C Truck Driver Training Externship C**  
1 credit hour/ 5 periods (5 lab)  
Overview of truck driver training in an externship format. Includes initial competencies, control systems, instruments, inspections, and basic vehicle control.  
Information: Admission to the Truck Driver Training Program is required before enrolling in this course.  
Offered: Fall, Spring, Summer.

## VETERINARY TECHNOLOGY

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**VET 100 Introduction to Veterinary Technology**  
3 credit hours/ 3 periods (3 lec.)  
Introduction into the role of the veterinary technician careers and career paths, legal applications, ethical responsibilities, professional attitudes, medical terminology, and occupational safety issues. Also includes breed identification of domestic animals, behavioral characteristics of animals, human-animal bonding, and dealing with pet loss.  
Corequisite(s): VET 110, VET 130, VET 225  
Information: Admission to the Veterinary Technology program is required before enrolling in this course.  
Offered: Fall.

**VET 101 Companion Animal**  
2 credit hours/ 2 periods (2 lec.)  
General overview of companion animal (dog and cat) ownership and care.  
Offered: May not be offered this year, check class schedule.

**VET 105 Practical Wildlife Rehabilitation**  
3 credit hours/ 3 periods (3 lec.)  
Introduction to the practical handling and rehabilitation of a variety of wild species with a state and nationally licensed wildlife rehabilitator. Includes skills, education and sponsored experience with several domestic species. Also includes the handling of some advanced species that will require a demonstration of competency.  
Information: This is not a restricted course and is open to any student interested in wildlife. This course would be beneficial to Veterinary Technology, Wildlife Management or other biological science related majors. Additional immunizations may be required before enrolling in this course.  
Offered: May not be offered this year, check class schedule.

**VET 106 Basic Skills for Veterinary Practice Assistant**  
3 credit hours/ 4 periods (2 lec., 2 lab)  
Introduction to the basic skills needed to assist veterinary professionals in the quality care of animals. Includes animal restraint, nursing, vaccinations and other basic assisting skills.  
Corequisite(s): VET 107, VET 108  
Information: Consult with program faculty before enrolling in this course.  
Offered: Fall, Spring.

**VET 107 Advanced Skills for Veterinary Practice Assistants**  
3 credit hours/ 4 periods (2 lec., 2 lab)  
Continuation of skills for assisting veterinary professionals in the quality care of animals. Includes pharmacy, surgical, laboratory and imaging skills.  
Corequisite(s): VET 106, VET 108  
Information: Consult with program faculty before enrolling in this course.  
Offered: Fall, Spring.

**VET 108 Introduction to Veterinary Facility Practices**  
6 credit hours/ 6 periods (6 lec.)  
Introduction into the role of the veterinary practice assistant in the veterinary medicine profession. Includes careers and career paths, legal applications, ethical responsibilities, professional attitudes, medical terminology, and occupational safety issues. Also includes standard office procedures with an emphasis in client relations and education and computer skills, breed identification of domestic animals, behavioral characteristics of animals, human-animal bonding, and dealing with pet loss.  
Corequisite(s): VET 106, VET 107  
Information: Consult with program faculty before enrolling in this course.  
Offered: Fall, Spring.

**VET 110 Veterinary Nursing Procedures I**  
3 credit hours/ 4 periods (2 lec., 2 lab)  
Introduction to veterinary nursing techniques. Includes physical examination, history taking, injections, preventative health care, basic nutrition and animal restraint. Also includes husbandry techniques, kennel management and sanitation of kennel facilities for dogs and cats.  
Corequisite(s): VET 100, VET 130, VET 225  
Information: Admission to the Veterinary Technology program is required before enrolling in this course.  
Offered: Fall.

**VET 111 Veterinary Nursing Procedures II**  
3 credit hours/ 4 periods (2 lec., 2 lab)  
Continuation of VET 110 with an emphasis on venipuncture, catheterization, fluid therapy and basic dental care procedures. Includes complete physical examinations, wound management, CPR and first aid.  
Prerequisite(s): VET 100, 110, 130 and 225.  
Corequisite(s): VET 120, VET 131, VET 150  
Offered: Spring.

**VET 120 Clinical Pathology I**  
3 credit hours/ 4 periods (2 lec., 2 lab)  
Introduction to clinical pathology. Includes pathology terminology, basic laboratory procedures and specimen collection and preservation. Also includes basic use and care of microscopes.  
Prerequisite(s): VET 100, 110, 130 and 225.  
Corequisite(s): VET 111, VET 131, VET 150  
Offered: Spring.

**VET 121 Clinical Pathology II**  
3 credit hours/ 4 periods (2 lec., 2 lab)  
Continuation of VET 120. Includes review of laboratory procedures, urinalysis, and cytologic evaluations. Also includes pathogens, parasites, and hematologic evaluations.  
Prerequisite(s): VET 111, 120, 131 and 150.  
Corequisite(s): VET 200, VET 211  
Offered: Fall.

**VET 130 Animal Anatomy and Physiology I**  
4 credit hours/ 6 periods (3 lec., 3 lab)  
Anatomy and Physiology of domestic animals. Includes the study of body systems such as skeletal, muscular, integumentary, special sense organs, circulatory and digestive. Also includes principles of disease.  
Corequisite(s): VET 100, VET 110, VET 225  
Information: Admission to Veterinary Technology program is required before enrolling in this course.  
Offered: Fall.

**VET 131 Animal Anatomy and Physiology II**  
3 credit hours/ 4 periods (2 lec., 2 lab)  
Continuation of VET 130. Includes the study of the nervous, respiratory, reproductive systems and teeth. Also includes endocrine and urinary systems and principles of disease.  
Prerequisite(s): VET 100, 110, 130 and 225.  
Corequisite(s): VET 111, VET 120, VET 150  
Offered: Spring.

**VET 150 Pharmacology**

3 credit hours/ 4 periods (2 lec., 2 lab)

Introduction to regulations of biologics and pharmaceuticals. Includes classification, dosage calculations, labeling, logging and packaging of drugs.

*Prerequisite(s):* VET 100, 110, 130 and 225.*Corequisite(s):* VET 111, VET 120, VET 131

Offered: Spring.

**VET 191 Veterinary Technician Clinical Experience I**

3 credit hours/ 12 periods (12 lab)

Supervised five-week clinical experience, which will be conducted at local veterinary hospitals, clinics, laboratory and zoo or research facilities.

Information: Completion of first year Veterinary Technology courses is required before enrolling in this course.

Offered: Summer.

**VET 196 Independent Study in Veterinary Technology**

1-3 credit hours/ 1-3 periods (1-3 lec.)

Independent study course offering students an inroad to focus on a particular Veterinary Medical subject or subjects, to study that subject, and to hone manual skills while working in an independent format. Content of study and its manner of execution must be developed through mutual agreement between the student and the instructor PRIOR to enrollment in the course.

Information: Consent of instructor is required before enrolling in this class.

Offered: May not be offered this year, check class schedule.

**VET 200 Anesthetic and Surgical Nursing**

3 credit hours/ 4 periods (2 lec., 2 lab)

Techniques and procedures involving surgery and anesthesia. Includes preparation and identification of instruments and equipment, routine surgical procedures and handling of instruments and supplies during surgery. Also includes anesthesia induction and monitoring, post surgical care, clean up and surgical record keeping.

*Prerequisite(s):* VET 111, 120, 131 and 150.*Corequisite(s):* VET 121, VET 211

Offered: Fall.

**VET 205 Radiology and Imaging Techniques**

3 credit hours/ 4 periods (2 lec., 2 lab)

Principles and techniques of radiographic imaging. Includes the production of X-rays, radiographic equipment, safety measurement, and radiographic quality. Also includes diagnostic radiographs, positioning of patients, darkroom techniques and X-ray processing.

*Prerequisite(s):* VET 121, 200 and 211.*Corequisite(s):* VET 210, VET 220

Offered: Spring.

**VET 210 Veterinary Nursing Procedures III**

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of VET 111. Includes both small and large animal topics, restraint procedures, nursing care and behavior of large animals, preventive medicine, nutrition, and large animal medical and surgical procedures. Also includes mentoring techniques, teamwork, communications, and health problem assessment involving kennel management.

*Prerequisite(s):* VET 111, 120, 131 and 150.*Corequisite(s):* VET 205, VET 220

Offered: Spring.

**VET 211 Veterinary Nursing Procedures IV**

2 credit hours/ 3 periods (1 lec., 2 lab)

Continuation of kennel responsibilities with an introduction to avian, exotic and laboratory animal care. Includes the care and management of laboratory animals, nursing procedures, preventative health care and restraint.

*Prerequisite(s):* VET 111, 120, 131, 150.*Corequisite(s):* VET 121, VET 200

Offered: Fall.

**VET 220 Clinical Pathology III**

3 credit hours/ 4 periods (2 lec., 2 lab)

Summation of laboratory skills and techniques needed of the Veterinary Technician. Includes blood chemistry, bacteriologic and microbiologic procedures and necropsy.

*Prerequisite(s):* VET 121, 200 and 211.*Corequisite(s):* VET 205, VET 210

Offered: Spring.

**VET 225 Veterinary Hospital Procedures**

3 credit hours/ 3 periods (3 lec.)

Standard office procedures with an emphasis in client relations, education and computer skills. Ethics in veterinary medicine, state and federal regulations governing veterinarian practices and all aspects of clinical patient care will be covered.

*Corequisite(s):* VET 100, VET 110, VET 130

Information: Admission to the Veterinary Technology program is required before enrolling in this course.

Offered: Fall.

**VET 230 VTNE and AZ State Veterinary Medical Examining Board Review**

3 credit hours/ 3 periods (3 lec.)

Preparation for a Veterinary Assistant or non-certified Technician to sit for the national and state Veterinary Technician Board Exams. Includes a review of the Arizona Revised Statutes and Administrative Rules pertaining to Veterinary medicine and content review of all pertinent medical subjects. Also includes test taking skills, test anxiety techniques and practice board exams.

Offered: Spring.

**VET 291 Veterinary Technician Clinical Experience**

3 credit hours/ 12 periods (12 lab)

Supervised five-week clinical experience, which will be conducted at local veterinary hospitals, clinics, laboratory, and zoo or research facilities.

Information: Completion of all VET Courses is required before enrolling in this course.

Offered: Spring.

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**WELDING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**WLD 110 Basic Arc and Oxyacetylene Welding**

4 credit hours/ 6 periods (2 lec., 4 lab)

Procedures and techniques in arc and oxyacetylene welding. Includes health, safety, and environmental practices, welding terminology, arc and oxyacetylene welding equipment, proper welding procedures for arc and oxyacetylene, arc and oxyacetylene steel welding, welding machines and polarities, filler metal identification, and welding positions, and oxyacetylene cutting.

Offered: Fall, Spring.

**WLD 115 Blueprint Reading/Estimating**

4 credit hours/ 4 periods (4 lec.)

Principles and procedures for interpreting structural blueprints and determining materials and labor costs. Includes fundamentals of blueprint reading, welding print format and types of fabrication blueprints, welding symbols and sizes, structural shapes and symbols, blueprint interpretation, introduction to estimating, bonds and insurance, materials specifications, labor, structural steel systems, and steel fabrication checklist.

*Prerequisite(s):* MAT 082 or required score on math assessment test.

Offered: Fall, Spring.

**WLD 119 Pattern Layout for Pipe and Structural Welding**

4 credit hours/ 5 periods (3 lec., 2 lab)

Layout techniques for pipe and structural welding. Includes introduction to pipe layout, drawing equipment, basic mathematics concepts, practical geometry, parallel line development, radial line development, triangulation line development, special problems, structural member connections, angle to angle, channel to channel, pipe to pipe, and sheet metal layout.

*Prerequisite(s):* MAT 082 or required score on math assessment test.

Offered: Fall, Spring.

**WLD 120 Welding for Metal Sculpture**

4 credit hours/ 6 periods (2 lec., 4 lab)

Basic welding techniques and processes used in metal sculpture design and fabrication. Includes oxyacetylene safety practice, oxyacetylene equipment handling, oxyacetylene welding procedures, assembly of portable equipment, oxyacetylene cutting and design, oxyacetylene bronze build-up, arc welding safety practices, arc welding procedures, basic joint design, currents and polarities, arc welding machines and electrodes, and arc designing for sculpture.

Offered: Fall, Spring.

**WLD 150 Oxyacetylene Welding**

3 credit hours/ 4 periods (2 lec., 2 lab)

Set up, procedures, and operation of oxyacetylene welding equipment. Includes safety, mild steel welding procedures, oxyacetylene welding equipment and terminology, welding joints, flame cutting, braze welding procedures, expansion and contraction, cast iron, and principles of silver soldering.

Offered: Spring.

**WLD 160 Arc Welding**

4 credit hours/ 6 periods (2 lec., 4 lab)

Principles and techniques of joining metals with an electric arc as the source. Includes arc welding uses, safety, techniques, flame cutting, joint design, welding costs, electric currents and power sources, carbon arc cutting, filler metal selection, hardfacing, and metal identification.

*Prerequisite(s):* WLD 110.

Information: Prerequisite may be waived with appropriate work experience or course work. See a welding instructor or advisor for prerequisite information.

Offered: Fall, Spring, Summer.



**WLD 161 SMAW Plate Certification Welding**

2 credit hours/ 4 periods (1 lec., 3 lab)

Advanced procedures in test plate welding certification using the American Welding Society Code D1.1. Includes test codes, weld test coupon evaluation, preparation of test plates, V-groove test plate welding, and evaluation of proper welding procedures.

*Prerequisite(s):* WLD 160.

Information: Prerequisite maybe waived with welding industry experience.

Offered: Spring.

**WLD 250 Pipe and Structural Welding**

4 credit hours/ 6 periods (2 lec., 4 lab)

Principles and techniques of pipe and structural welding. Includes introduction to performance testing, types of pipe, methods and preparation of pipe joints and miter joints, methods of joining pipe and miter joints, preparation of structural members, and methods of welding structural members.

*Prerequisite(s):* WLD 119 or 160.

Information: Prerequisites may be waived with appropriate work experience.

Offered: Fall, Spring.

**WLD 261 Gas Metal Arc Welding**

4 credit hours/ 6 periods (2 lec., 4 lab)

Procedures and techniques in Gas Metal Arc Welding (GMAW) and Flux Core Arc Welding (FCAW) processes. Includes health, safety, and environmental practices, welding terminology, GMAW and FCAW processes and equipment, equipment operation and welding techniques, power source and wire feed types and controls, welding currents and polarities, welding wires in GMAW and FCAW processes, shielding gases, and mild steel and aluminum welding.

*Recommendation:* WLD 110.

Information: Prerequisite maybe waived with welding industry experience.

Offered: Fall, Spring.

**WLD 262 Gas Tungsten Arc Welding**

4 credit hours/ 6 periods (2 lec., 4 lab)

Procedures and techniques in the Gas Tungsten Arc Welding (GTAW) process. Includes health, safety, and environmental practices, welding terminology, GTAW process and equipment, equipment operation and techniques, power source types and controls, welding currents and polarities, tungsten electrodes, shielding gases, mild steel welding, aluminum welding, stainless steel welding, and GTAW certification.

*Recommendation:* WLD 110 or welding industry experience.

Information: Prerequisite maybe waived with welding industry experience.

Offered: Fall, Spring, Summer.

**WLD 263 Layout and Fabrication Welding**

4 credit hours/ 6 periods (2 lec., 4 lab)

Principles and techniques of steel layout and fabrication welding. Includes measurement, print reading review, layout tools and techniques, hand-held and large power tool safety and use, drawing interpretation, and welding projects.

*Prerequisite(s):* WLD 115, 261, GTM 105 or math assessment at MAT 092 or higher.*Recommendation:* WLD 160.

Information: Prerequisites may be waived for appropriate work experience. See a welding instructor or advisor for prerequisite information.

Offered: Spring.

**WLD 297 Welding Seminar**

.25-4 credit hours/ .25-4 periods (.25-4 lec.)

Welding job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

Information: Consent of instructor is required before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**WELLNESS EDUCATION**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**WED 110 Introduction to Complementary & Alternative Medicine**

3 credit hours/ 3 periods (3 lec.)

Definition of health; exploration of mind-body-spirit connection in health; various therapeutic modalities; identification of strengths and limitations of alternative therapies. Also includes development of ability to critically review written material in the alternative therapy area.

Offered: Fall.

**WED 111 Self Care for Personal Wellness**

2 credit hours/ 2 periods (2 lec.)

Emphasis on mind-body methods for personal wellness through integration of physical, emotional, social, and spiritual dimensions of being. Development of a personal practice to achieve and sustain a balanced program to support personal health and well being.

Offered: Spring.

**WOMEN'S STUDIES**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**WST 100 Introduction to Feminist Studies**

3 credit hours/ 3 periods (3 lec.)

Interdisciplinary survey and analysis of women's issues in structured inequalities and globalization. Includes feminist studies: study of gender, culture, and society; theoretical approaches to gender; learning gender socialization; contemporary feminist issues: socialization, work, and family; body and health issues; gender issues and intimacy; gender and the economy; gender, politics, government, and the military; gender, education, creativity, and language; and gender and spirituality.

Offered: Fall, Spring.

**WRITING**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

**WRT 070 Developmental Writing**

3 credit hours/ 3 periods (3 lec.)

Development of fundamental writing skills. Includes sentence development and structure, writing processes, and written works.

*Prerequisite(s):* Required score on Writing assessment test.

Information: Equivalent to WRT 075.

Offered: Fall, Spring, Summer.

**WRT 070A Developmental Writing: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of WRT 070.

*Prerequisite(s):* Required score on Writing assessment test.

Information: WRT 070A, 070B, and 070C together constitute WRT 070. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 070B only. Equivalent to WRT 075A.

Offered: Fall, Spring, Summer.

**WRT 070B Developmental Writing: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of WRT 070.

*Prerequisite(s):* WRT 070A with a C or better or concurrent enrollment in WRT 070A or WRT 070C.

Information: WRT 070A, 070B, and 070C together constitute WRT 070. A student may enroll in only two modules at a time. Equivalent to WRT 075B.

Offered: Fall, Spring, Summer.

**WRT 070C Developmental Writing: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of WRT 070.

*Prerequisite(s):* WRT 070B with a C or better or concurrent enrollment in WRT 070B only.

Information: WRT 070A, 070B, and 070C together constitute WRT 070. A student may enroll in only two modules at a time. Equivalent to WRT 075C.

Offered: Fall, Spring, Summer.

**WRT 072 Sentence Patterns**

1 credit hour/ 1 period (1 lec.)

Review of various types of sentence structures. Includes variety of sentences, common grammar and sentence errors, punctuation, and short papers.

Offered: Fall, Spring, Summer.

**WRT 073 Punctuation**

1 credit hour/ 1 period (1 lec.)

Review of punctuation mechanics. Includes rules of punctuation, punctuation mark usage, and written assignments.

Offered: Fall, Spring, Summer.

**WRT 075 Writing for Non-Native Speakers of English**

3 credit hours/ 3 periods (3 lec.)

Development of fundamental writing skills for non-native speakers of English. Includes sentence development and structure, writing processes, and written works.

*Prerequisite(s):* Required score on the Writing assessment test.*Recommendation:* Completion of ESL 085 or 088 before enrolling in this course.

Information: Equivalent to WRT 070.

Offered: May not be offered this year, check class schedule.

**WRT 075A Developmental Writing for Non-Native Speakers of English: Module A**

1 credit hour/ 1 period (1 lec.)

Module A constitutes approximately the first one third of WRT 075.

Prerequisite(s): Required score on Writing assessment test.

Recommendation: Completion of ESL 085 or 088 before enrolling in this course.

Information: WRT 075A, 075B, and 075C together constitute WRT 075. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 075B only. Equivalent to WRT 070A.

Offered: Fall, Spring.

**WRT 075B Developmental Writing for Non-Native Speakers of English: Module B**

1 credit hour/ 1 period (1 lec.)

Module B constitutes approximately the second one third of WRT 075.

Prerequisite(s): WRT 075A with a C or better or concurrent enrollment in WRT 075A or 075C.

Information: WRT 075A, 075B, and 075C together constitute WRT 075. A student may enroll in only two modules at a time. Equivalent to WRT 070B.

Offered: Fall, Spring.

**WRT 075C Developmental Writing for Non-Native Speakers of English: Module C**

1 credit hour/ 1 period (1 lec.)

Module C constitutes approximately the third one-third of WRT 075.

Prerequisite(s): WRT 075B with a C or better or concurrent enrollment in WRT 075B only.

Information: WRT 075A, 075B, and 075C together constitute WRT 075. A student may enroll in only two modules at a time. See an Alternative Learning Center writing faculty on the Downtown Campus for registration information. Equivalent to WRT 070C.

Offered: Fall, Spring.

**WRT 100 Writing Fundamentals**

3 credit hours/ 3 periods (3 lec.)

Review of sentence structure, mechanics and usage. Includes review of sentence patterns, designing and writing effective paragraphs, and developing short essays.

Prerequisite(s): WRT 070 or 075 with a C or better or required score on the Writing assessment test.

Information: Equivalent to WRT 106.

Offered: Fall, Spring, Summer.

**WRT 100A Writing Fundamentals: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of WRT 100.

Prerequisite(s): WRT 070 or 075 with a C or better or required score on Writing assessment test.

Information: WRT 100A, 100B, and 100C together constitute WRT 100. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 100B only. Equivalent to WRT 106A.

Offered: Fall, Spring, Summer.

**WRT 100B Writing Fundamentals: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of WRT 100.

Prerequisite(s): WRT 100A with a C or better or concurrent enrollment in WRT 100A or 100C.

Information: WRT 100A, 100B, and 100C together constitute WRT 100. A student may enroll in only two modules at a time. Equivalent to WRT 106B.

Offered: Fall, Spring, Summer.

**WRT 100C Writing Fundamentals: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of WRT 100.

Prerequisite(s): WRT 100B with a C or better or concurrent enrollment in WRT 100B only.

Information: WRT 100A, 100B, and 100C together constitute WRT 100. A student may enroll in only two modules at a time. See an Alternative Learning Center writing faculty on the Downtown Campus for registration information. Equivalent to WRT 106C.

Offered: Fall, Spring, Summer.

**WRT 101 Writing I**

3 credit hours/ 3 periods (3 lec.)

Principles and practices of writing. Includes writing college-level essays, review of basic writing skills, and written works. Also includes narrative/descriptive, expository, and persuasive writing.

Prerequisite(s): WRT 100 or 106 with a C or better or required score on Writing assessment test.

Information: Equivalent to WRT 107.

Offered: Fall, Spring, Summer.

**WRT 101A Writing I - Module A**

1 credit hour/ 1 period (1 lec.)

Module A constitutes approximately the first one-third of WRT 101.

Prerequisite(s): WRT 100 or 106 with a C or better or required score on Writing assessment test.

Information: WRT 101A, 101B, and 101C together constitute WRT 101. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 101B only. Equivalent to WRT 107A.

Offered: Fall, Spring, Summer.

**WRT 101B Writing I - Module B**

1 credit hour/ 1 period (1 lec.)

Module B constitutes approximately the second one-third of WRT 101.

Prerequisite(s): WRT 101A with a C or better or concurrent enrollment in WRT 101A or 101C.

Information: WRT 101A, 101B, and 101C together constitute WRT 101. A student may enroll in only two modules at a time. Equivalent to WRT 107B.

Offered: Fall, Spring, Summer.

**WRT 101C Writing I - Module C**

1 credit hour/ 1 period (1 lec.)

Module C constitutes approximately the third one-third of WRT 101.

Prerequisite(s): WRT 101B with a C or better or concurrent enrollment in WRT 101B only.

Information: WRT 101A, 101B, and 101C together constitute WRT 101. See an Alternative Learning Center writing faculty on the Downtown Campus for registration information. A student may enroll in only two modules at a time. Equivalent to WRT 107C.

Offered: Fall, Spring, Summer.

**WRT 101HC Writing I: Honors**

3 credit hours/ 3 periods (3 lec.)

Principles and practices of writing. Includes writing college-level essays, review of basic writing skills, written works, and advanced research and critical thinking skills. Also includes narrative/descriptive, expository, and persuasive writing as well as additional Honors level content.

Prerequisite(s): Honors assessment score is required.

Information: Qualification for Honors program and consent of instructor or advisor/counselor is required before enrolling in this course.

Offered: Fall.

**WRT 102 Writing II**

3 credit hours/ 3 periods (3 lec.)

Continuation of WRT 101. Includes writing analytical or critical papers, analysis and discussion of various types of literature, developing research skills, and written works. Also includes writing a research paper.

Prerequisite(s): WRT 101 or 107 with a C or better.

Offered: Fall, Spring, Summer.

**WRT 102HC Writing II: Honors**

3 credit hours/ 3 periods (3 lec.)

Continuation of WRT 101 or WRT 101HC. Includes writing analytical or critical papers, analysis and discussion of various types of literature, developing advanced research and critical thinking skills, and written works. Also includes writing a research paper as well as additional Honors level content.

Prerequisite(s): WRT 101 or WRT 101HC with a C or better.

Information: Qualification for Honors program and consent of instructor or advisor/counselor is required before enrolling in this course.

Offered: Spring.

**WRT 106 Writing Fundamentals for Non-Native Speakers of English**

3 credit hours/ 3 periods (3 lec.)

Writing Fundamentals for Non-Native Speakers of English Review of sentence structure, mechanics and usage appropriate for non-native speakers of English. Includes review of sentence patterns, designing and writing effective paragraphs, and developing short essays.

Prerequisite(s): WRT 070 or 075 with a C or better or required score on Writing assessment test.

Information: Equivalent to WRT 100.

Offered: Fall, Spring.

**WRT 106A Writing Fundamentals for Non-Native Speakers of English: Module A**

1 credit hour/ 1 period (1 lec.)

Module A constitutes approximately the first one-third of WRT 106.

Prerequisite(s): WRT 070 or 075 with a C or better or required score on Writing assessment test.

Information: WRT 106A, 106B, and 106C together constitute WRT 106. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 106B only. Equivalent to WRT 100A.

Offered: Fall, Spring.

### **WRT 106B Writing Fundamentals for Non-Native Speakers of English: Module B**

1 credit hour/ 1 period (1 lec.)

Module B constitutes approximately the second one-third of WRT 106.

**Prerequisite(s):** WRT 106A with a C or better or concurrent enrollment in WRT 106A or 106C.

Information: WRT 106A, 106B, and 106C together constitute WRT 106. A student may enroll in only two modules at a time. Equivalent to WRT 100B.

Offered: Fall, Spring.

### **WRT 106C Writing Fundamentals for Non-Native Speakers of English: Module C**

1 credit hour/ 1 period (1 lec.)

Module C constitutes approximately the third one-third of WRT 106.

**Prerequisite(s):** WRT 106B with a C or better or concurrent enrollment in WRT 106B only.

Information: WRT 106A, 106B, and 106C together constitute WRT 106. See an Alternative Learning Center writing faculty on the Downtown Campus for registration information. A student may enroll in only two modules at a time. Equivalent to WRT 100C. Offered: Fall, Spring.

### **WRT 107 Writing I for Non-Native Speakers of English**

3 credit hours/ 3 periods (3 lec.)

Principles and practices of writing appropriate for non-native speakers of English. Includes writing college level essays, review of basic writing skills, and written works. Also includes narrative/descriptive, expository, and persuasive writing.

**Prerequisite(s):** WRT 100 or 106 with a C or better or required score on the Writing assessment test.

Information: Equivalent to WRT 101.

Offered: Fall, Spring, Summer.

### **WRT 107A Writing I for Non-Native Speakers of English: Module A**

1 credit hour/ 1 period (1 lec.)

Module A constitutes approximately the first one-third of WRT 107.

**Prerequisite(s):** WRT 100 or 106 with a C or better or required score on Writing assessment test.

Information: WRT 107A, 107B, and 107C together constitute WRT 107. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 107B only. Equivalent to WRT 101A.

Offered: Fall, Spring.

### **WRT 107B Writing I for Non-Native Speakers of English: Module B**

1 credit hour/ 1 period (1 lec.)

Module B constitutes approximately the second one-third of WRT 107.

**Prerequisite(s):** WRT 107A with a C or better or concurrent enrollment in WRT 107A or 107C.

Information: WRT 107A, 107B, and 107C together constitute WRT 107. A student may enroll in only two modules at a time. Equivalent to WRT 101B.

Offered: Fall, Spring.

### **WRT 107C Writing I for Non-Native Speakers of English: Module C**

1 credit hour/ 1 period (1 lec.)

Module C constitutes approximately the third one-third of WRT 107.

**Prerequisite(s):** WRT 107B with a C or better or concurrent enrollment in WRT 107B only.

Information: WRT 107A, 107B, and 107C together constitute WRT 107. See an Alternative Learning Center writing faculty on the Downtown Campus for registration information. A student may enroll in only two modules at a time. Equivalent to WRT 101C.

Offered: Fall, Spring.

### **WRT 108 Writing II for Non-Native Speakers of English**

3 credit hours/ 3 periods (3 lec.)

Continuation of WRT 107 appropriate for non-native speakers of English. Includes writing analytical or critical papers, analysis and discussion of various types of literature, developing research skills and written works. Also includes writing a research paper.

**Prerequisite(s):** WRT 101 or 107 with a C or better or required score on Writing assessment test.

Information: Equivalent to WRT 102.

Offered: Fall, Spring, Summer.

### **WRT 125 Beginning Poetry Writing**

3 credit hours/ 3 periods (3 lec.)

Poetry for beginners. Includes beginning techniques of poetry writing and their effects, beginning evaluation and critical response to poems, and beginning original writing.

Information: Not for transfer. May be taken three times for a maximum of nine credit hours.

Offered: Fall, Spring.

### **WRT 126 Basics of Short Story Writing**

3 credit hours/ 3 periods (3 lec.)

Writing and reviewing short stories. Includes types and styles of short fiction, survey of American short stories, aesthetics toward creative short story writing, and writing a short story.

Information: May be taken three times for a maximum of nine credit hours.

Offered: Fall, Spring.

### **WRT 154 Career Communications**

3 credit hours/ 3 periods (3 lec.)

Job related writing skills. Includes writing for audiences and situations, completing job related forms, writing resumes, and using standard written English. May include other written communications as appropriate to occupational areas.

**Prerequisite(s):** WRT 100 or 106, or 101 or 107 with a C or better or required score on Writing assessment test.

Offered: Fall, Spring.

### **WRT 154A Career Communication: Job Related Writing Principles and Skills**

1 credit hour/ 1 period (1 lec.)

Module A constitutes approximately the first one-third of WRT 154.

**Prerequisite(s):** WRT 100 or 106, or 101 or 107 with a C or better or required score on Writing assessment test.

Information: WRT 154A, 154B, and 154C together constitute WRT 154. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 154B only.

Offered: Fall, Spring, Summer.

### **WRT 154B Career Communications: Basic Job Related Correspondence**

1 credit hour/ 1 period (1 lec.)

Module B constitutes approximately the second one-third of WRT 154.

**Prerequisite(s):** WRT 154A with a C or better or concurrent enrollment in WRT 154A or 154C.

Information: WRT 154A, 154B, and 154C together constitute WRT 154. A student may enroll in only two modules at a time.

Offered: Fall, Spring, Summer.

### **WRT 154C Career Communications: Basic Job Related Reports**

1 credit hour/ 1 period (1 lec.)

Module C constitutes approximately the third one third of WRT 154.

**Prerequisite(s):** WRT 154B with a C or better or concurrent enrollment in WRT 154B only.

Information: WRT 154A, 154B, and 154C together constitute WRT 154. A student may enroll in only two modules at a time. See an Alternative Learning Center writing faculty on the Downtown Campus for registration information.

Offered: Fall, Spring, Summer.

### **WRT 162 Literary Magazine Workshop**

3 credit hours/ 3 periods (3 lec.)

Creative magazine publication. Includes review of college literary magazines, critical review, magazine design and editing, magazine production techniques, and printing and distribution.

Information: May be taken two times for a maximum of six credit hours.

Offered: Spring.

### **WRT 196 Independent Studies in Writing**

1-4 credit hours/ 3-12 periods (3-12 lab)

Independent projects in writing to be arranged with the instructor.

Information: May be taken four times for a maximum of sixteen credit hours.

Offered: May not be offered this year, check class schedule.

### **WRT 205 Introduction to Poetry Writing**

3 credit hours/ 3 periods (3 lec.)

Writing contemporary poetry. Includes techniques of poetry writing and their effects, evaluation and critical response to poems, and original writing.

**Prerequisite(s):** WRT 102 or 108 with a C or better.

Offered: Fall, Spring.

### **WRT 206 Short Story Writing**

3 credit hours/ 3 periods (3 lec.)

Short fiction writing. Includes techniques of fiction writing and their effects, critical responses to fiction, and original writing.

**Prerequisite(s):** WRT 102 or 108 with a C or better.

Offered: Fall, Spring.

### **WRT 207 Sophomore Composition: Creative Nonfiction**

3 credit hours/ 3 periods (3 lec.)

Creative nonfiction writing. Includes techniques of nonfiction writing and their effects, original writing, and critical responses to nonfiction.

**Prerequisite(s):** WRT 102 with a C or better.

Information: Consent of instructor is required to enroll in this course.

Offered: Fall, Spring.



### **WRT 215 Advanced Poetry Writing**

3 credit hours/ 3 periods (3 lec.)

Advanced poetry writing workshop. Includes continued focus on techniques of writing, evaluation and critical responses to poetry, and original writing. Also includes more intensive study of contemporary poets and poetry.

Prerequisite(s): WRT 125 or 205 with a C or better.

Information: Consent of instructor is required to enroll in this course.

Offered: Fall, Spring.

### **WRT 216 Advanced Fiction Writing**

3 credit hours/ 3 periods (3 lec.)

Advanced techniques of fiction writing. Includes advanced techniques of fiction writing, original writing, and critical response to fiction. Also includes preparing manuscripts for publication.

Prerequisite(s): WRT 206 with a C or better.

Information: Consent of instructor is required to enroll in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

### **WRT 217 Advanced Composition: Creative Nonfiction**

3 credit hours/ 3 periods (3 lec.)

Advanced techniques of creative nonfiction writing. Includes original writing, critical responses to nonfiction, and marketing techniques.

Prerequisite(s): WRT 207 with a C or better.

Information: Consent of instructor is required to enroll in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

### **WRT 226 Special Projects in Fiction**

3 credit hours/ 3 periods (3 lec.)

Advanced fiction writing for book-length projects. Includes techniques for book-length fiction writing, original writing and/or revision process, critical responses to fiction, and marketing and publishing of fiction books.

Prerequisite(s): WRT 216 with a C or better.

Information: Consent of instructor is required to enroll in this course. May be taken four times for a maximum of twelve credit hours.

Offered: Fall.

### **WRT 254 Advanced Professional Communications**

3 credit hours/ 3 periods (3 lec.)

Techniques of writing for scientific, technical and other professional occupations. Includes writing long and short reports, researching and writing about a topic, oral presentations, and use of appropriate style.

Prerequisite(s): WRT 102 or 108 with a C or better.

Offered: Fall, Spring.

### **WRT 254A Advanced Professional Communications: Module A**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the first one-third of WRT 254.

Prerequisite(s): WRT 102 or 108 with a C or better.

Information: WRT 254A, 254B, and 254C together constitute WRT 254. A student may enroll in only two modules at a time. Concurrent enrollment in WRT 254B only.

Offered: Fall, Spring, Summer.

### **WRT 254B Advanced Professional Communications: Module B**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the second one-third of WRT 254.

Prerequisite(s): WRT 254A with a C or better or concurrent enrollment in WRT 254A or 254C.

Information: WRT 254A, 254B, and 254C together constitute WRT 254. A student may enroll in only two modules at a time.

Offered: Fall, Spring, Summer.

### **WRT 254C Advanced Professional Communications: Module C**

1 credit hour/ 1 period (1 lec.)

Constitutes approximately the third one-third of WRT 254.

Prerequisite(s): WRT 254B with a C or better or concurrent enrollment in WRT 254B only.

Information: WRT 254A, 254B, and 254C together constitute WRT 254. A student may enroll in only two modules at a time. See and Alternative Learning Center writing faculty on the Downtown Campus for registration information.

Offered: Fall, Spring, Summer.

### **WRT 281 Beginning Workshop in Tutoring Composition**

1 credit hour/ 3 periods (3 lab)

Introductory workshop in tutoring composition. Includes tutee characteristics and tutoring techniques for development of writing strategies.

Prerequisite(s): WRT 101 and 102 with a grade of C or better.

Offered: May not be offered this year, check class schedule.

### **WRT 282 Intermediate Workshop in Tutoring Composition**

1 credit hour/ 3 periods (3 lab)

Continuation of WRT 281. Includes assisting tutees with research methods, assisting tutees with disabilities, and assisting tutees whose first language is not English.

Prerequisite(s): WRT 281 with a C or better.

Offered: May not be offered this year, check class schedule.

### **WRT 285 Pima Writers' Workshop**

2 credit hours/ 2 periods (2 lec.)

Writing of fiction, nonfiction, poetry, stories for children, and screenplays. Includes techniques of writing, publishing trends and approaches, and criteria for evaluating writing. Also includes the opportunity for participants to have their writing critiqued and presentations by professional authors, editors, and agents.

Offered: Summer.

## **YAQUI**

For courses numbered 098, 198, 298, see "Topic Courses" on page 198

### **Yaq 101 Elementary Yaqui I**

4 credit hours/ 4 periods (4 lec.)

Introduction to the Yaqui language. Includes instruction in the grammar and writing system of the language and is intended to help the student acquire skills in speaking, reading, and writing Yaqui. Also includes an overview of Yaqui traditional culture as a background for the use of the language.

Offered: May not be offered this year, check class schedule.

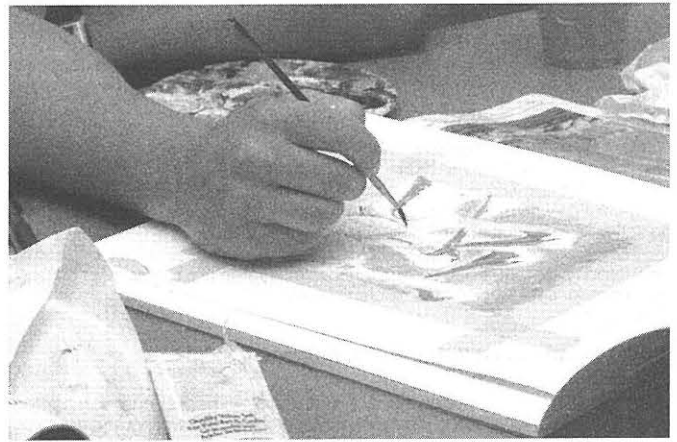
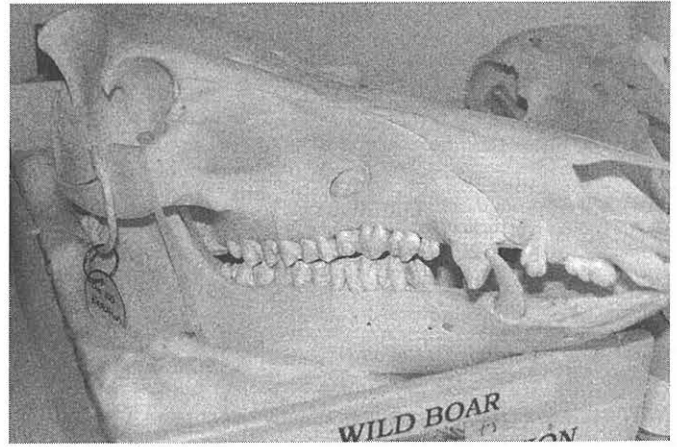
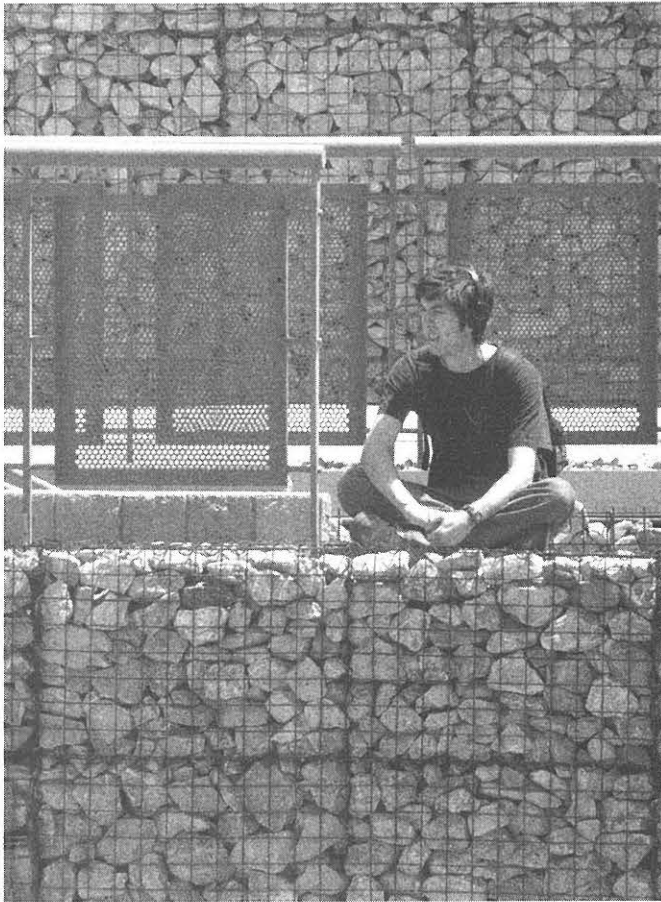
### **Yaq 102 Elementary Yaqui II**

4 credit hours/ 4 periods (4 lec.)

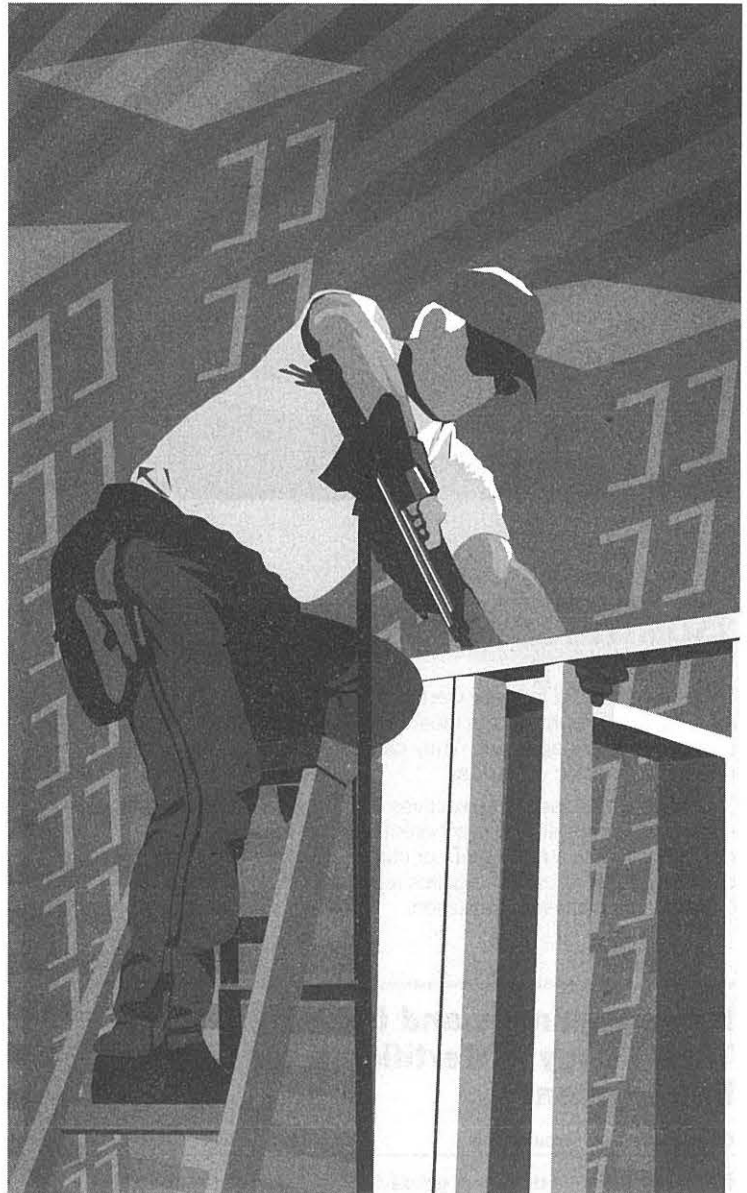
Continuation of Yaq 101. Includes development of skills in speaking, understanding, reading, and writing the language. Also includes study of the Yaqui traditional culture as a background for language use.

Prerequisite(s): Yaq 101.

Offered: May not be offered this year, check class schedule.



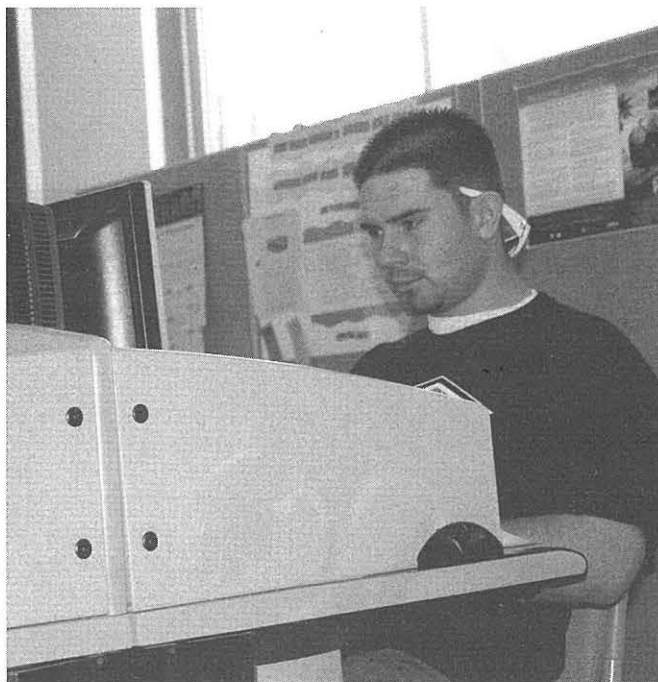
# Other Educational Programs





## Workforce Response Programs

The programs and courses in this section are provided as a service to external agencies, usually on a contractual basis. Students are selected for these programs and courses by the contractual agency and generally are not open to the general public. Please contact the Center for Business Solutions for more information at (520) 206-6569.



## Business and Industry

The Business and Industry Certificates and degrees are designed for a variety of purposes to meet the needs of business, industry, and government agencies. They can be customized for clientele in need of a specific credential.

The intent of the technical electives is to provide students a body of knowledge and skill that is coherent and provides them opportunities for a new career or career advancement. The choice of these electives usually requires a partnership between the College and another organization.

### Basic Business and Industry Technology — Certificate for Direct Employment

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
Electives	Technical Electives	3-15
Complete 3-15 credit hours from Business or Industry Technical courses with the approval of a faculty advisor or instructional dean.		
<b>Total credits as displayed</b>		<b>3-15</b>

### Advanced Business and Industry Technology — Certificate for Direct Employment

General Education courses are required for certificates that exceed 29 credits.

**General Education Requirements - A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 3  
See General Education section, Requirements for Direct Employment Programs

Analysis and Critical Thinking Requirement . . . . . 3  
See General Education section, Requirements for Direct Employment Programs

**Subtotal. . . . . 6**

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

Technical Electives . . . . . 16-59  
Complete 16-59 credit hours from Business or Industry Technical courses with the approval of a faculty advisor or instructional dean.

## Advanced Business and Industry Technology — Certificate for Direct Employment — Retail Management

The Advanced Business and Industry Technology Certificate for Direct Employment with a concentration in Retail Management is fully endorsed by the Western Association of Food Chains (WAFC).

This comprehensive program designed to prepare current and future retail employees for the challenges found in a competitive retail environment. Primary emphasis is to provide the students with the essential business skills needed to develop a successful management career in retailing. This program is also intended to help students develop a clear sense of the scope of the retail manager's job and an understanding of the basic requirements for success in the future.

The Retail Management Major and Certificate coursework incorporates educational knowledge, human relations, IT technical skills, and is structured to lead students to competence in several areas. The program incorporates a variety of elements designed to assist students in obtaining these competencies. Courses will be available during the days and evenings, as well as offered either through traditional means or via distance education where possible and appropriate, enabling students to complete the certificate while working part or full time.

### General Education Requirements - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement	3
See General Education section, Requirements for Direct Employment Programs	
Analysis and Critical Thinking Requirement	3
See General Education section, Requirements for Direct Employment Programs	

**Subtotal** ..... 6

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

ACC 101	Financial Accounting (F, Sp, S)	3
BUS 151	Mathematics of Business (F, Sp, S)	3
CIS 100 or CSA 101	Introduction to Computers (F, Sp, S) Computer Fundamentals (F, Sp, S)	3
MGT 122	Supervision (F, Sp, S)	3
MGT 110	Human Relations in Business & Industry (F, Sp, S)	3
MGT 276	Human Resources (F)	3
MKT 111	Marketing (F, Sp, S)	3
MKT 139	Retailing (n/o)	3
SPE 120	Business and Professional Communication (F, Sp, S)	3
<b>Subtotal</b>		<b>27</b>
<b>Total credits as displayed</b>		<b>33</b>

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

## Business and Industry Technology — Associate of Applied Science Degree

The Associate of Applied Science degree is available for a variety of purposes to meet the needs of business, industry, and government agencies. It can be customized for apprenticeship, for workforce development, and for special clientele in need of a custom credential.

The intent of the technical electives is to provide students a body of knowledge and skill which is coherent and provides them opportunities for either a new career or career advancement. The choice of these electives usually requires a partnership between the College and another organization.

### General Education Requirements - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement	6
See General Education section, Requirements for Direct Employment Programs	
Analysis and Critical Thinking Requirement	6
See General Education section, Requirements for Direct Employment Programs	
Humanities and Social Science Requirement	6
See General Education section, Requirements for Direct Employment Programs	
Computer and Information Literacy Requirement	1-3
See General Education section, Requirements for Direct Employment Programs	

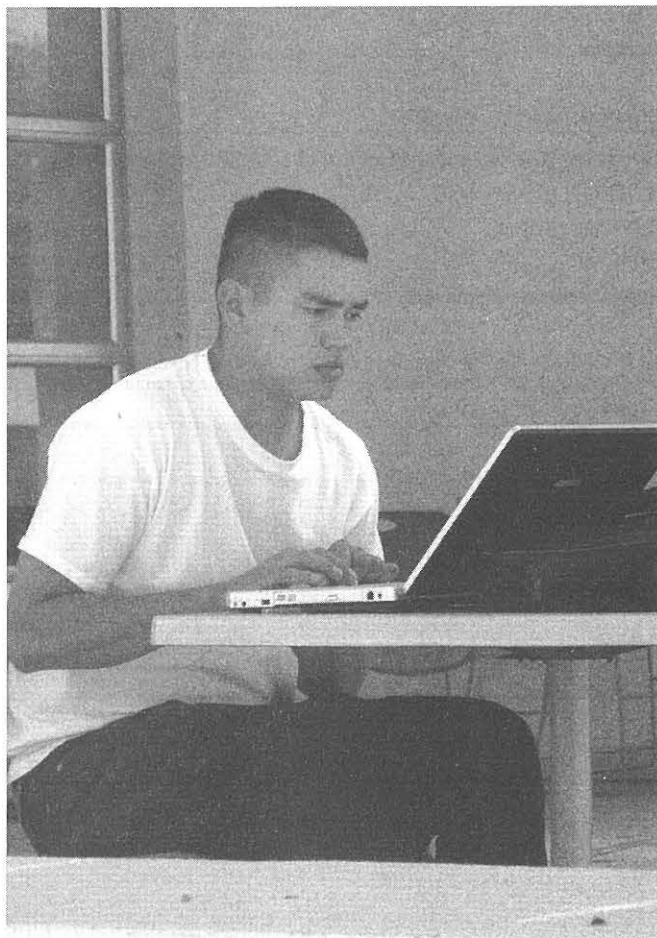
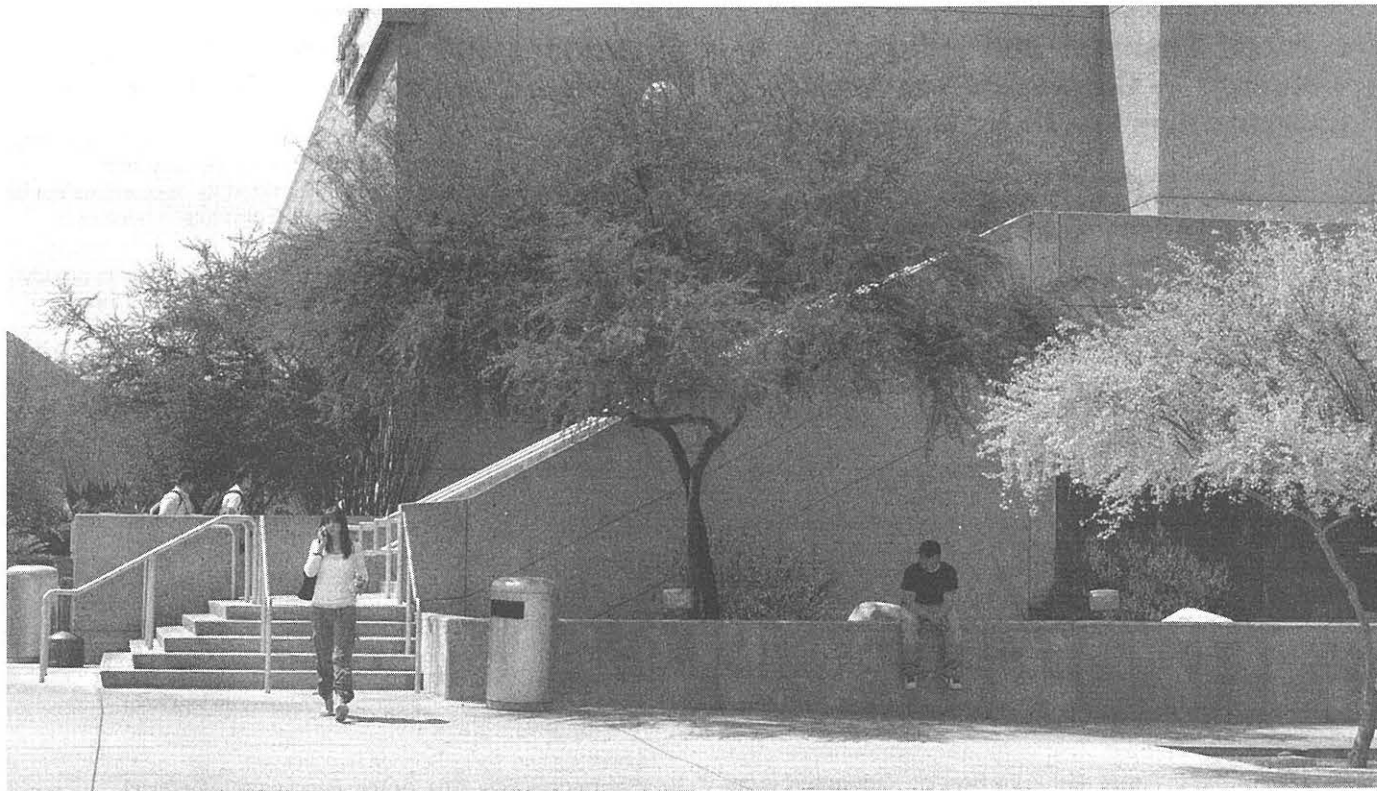
**Subtotal** ..... 19-21

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

Technical electives	42-46
<b>Subtotal</b>	<b>42-46</b>
<b>Total credits as displayed</b>	<b>61-67§</b>

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Communications

### Communication Development Certificate

This certificate is designed to develop and refine professional communication skills. From e-mail etiquette to dealing with difficult people, all forms of personal and interpersonal communication are addressed. All courses are designed for direct application in the workplace.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BMS 102	Team Problem Solving . . . . .	1
BMS 111	Workplace Communications . . . . .	2
BMS 120	Business Grammar . . . . .	.75
BMS 155	Excellence in Service . . . . .	2
BMS 172	Communicating with Difficult People . . . . .	.75
<b>Total credits as displayed . . . . .</b>		<b>6.5</b>

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule



# Corrections

These programs are part of the Public Safety and Emergency Services Institute - for more information contact the Division Dean/Director at (520) 206-6350.

## Corrections Officer Training Academy (COTA) — Certificate for Direct Employment

Learn corrections and training concepts, applications, and techniques for employment by the State of Arizona Department of Corrections. This certificate is open to those persons selected for employment by the State of Arizona Department of Corrections and is scheduled based on agency requirements.

**Before enrolling in this program** you must meet certain admission requirements.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
COR 160	Correctional System Ethics and Professionalism . . .	1
COR 162	Introduction to Inmate Management . . . . .	3
COR 164	Correctional Information systems . . . . .	1
COR 166	Correction Officers Safety and Weapons Training . .	2
COR 168	Inmate Security Procedures I . . . . .	2
COR 169	Inmate Security Procedures II . . . . .	3
COR 170	Security, Custody, and Control Procedures . . . . .	2
COR 172	Conflict and Crisis Management . . . . .	2
COR 176	Medical and Mental Health . . . . .	2
COR 178	Physical Fitness and Self Defense Training . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>21</b>

## County Corrections Training Academy — Certificate for Direct Employment

This certificate program is open to those persons selected for employment by the Pima County Sheriff's Department, Bureau of Corrections, or Program Director and is awarded upon successful completion of this certificate.

**Before enrolling in this program** you must meet certain admission requirements.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
COR 110	County Correctional Officer Training Academy . . .	18
COR 115	Corrections Training Officer . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>21</b>

## Youth Supervision in Corrections and Detention — Certificate for Direct Employment

Learn youth supervision techniques for employment by the State of Arizona or the Pima County Department of Juvenile Corrections. This certificate is open to those persons selected for employment by the State of Arizona or the Pima County Department of Juvenile Corrections and is scheduled based on agency schedules.

**Before enrolling in this program** you must meet certain admission requirements.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation</b>		
<b>Pima County Youth Corrections Academy</b>		
JVC 180	Pima County Detention Officer Certification . . . . .	12
<b>Total credits as displayed . . . . .</b>		<b>12</b>

### Arizona Youth Corrections Academy

JVC 110	Juvenile Corrections and Supervision Fundamentals . . . . .	4.5
JVC 115	Youth Contact Staff Fundamentals . . . . .	4.5
JVC 130	Health and Safety Services for Youth . . . . .	7.5
JVC 190	Field Experience: Supervised Field Training . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>9</b>

## Pima County Juvenile Court Center's Detention Facility Supervision and Mentoring — Certificate for Direct Employment

The Pima County Juvenile Court Center's Detention Facility Supervision and Mentoring program provides after academy training in supervision and mentoring strategies.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
JVC 181*	Classification Pods . . . . .	3
JVC 182*	General Population Pods . . . . .	3
JVC 183*	Administrative Segregation Pods . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>9</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Emergency Medical Technology

**These programs are not open to the general public.** Please contact the Public Safety and Emergency Services Institute at Community Campus for more information — (520) 206-6350.

These programs are approved by the Arizona Department of Health Services, Bureau of Emergency Medical Services. Students who complete the program will be issued an Associate of Applied Science degree by Pima Community College. Upon successful completion of the program, the graduate is eligible to take the required State and National Registry of Emergency Medical Technicians examinations. Current Arizona Department of Health Services regulations allow program graduates to take the Arizona EMT-P examination and/or the National Registry of Emergency Medical Technicians examination. Certification to work as an emergency medical technician rests entirely with the Arizona Department of Health Services, Bureau of Emergency Medical Services. Requirements for entrance into the EMS-P program (see narrative) may also be found in Arizona Administrative Code, Title 9, Chapter 25, Article 408 (A) (B) (C) (D).

### Acceptance into the program:

- Completion of college admission requirements.
- Completion of acceptance criteria as established by the Arizona Department of Health Services and Pima Community College.
- Completion of the following prerequisites:  
BIO 160IN Introduction to Human Anatomy and Physiology - 4 Credits  
OAP 162 Medical Terms I – 3 Credits
- Students must hold current certification as an EMT-B, I-EMT or EMT-P.
- Program size is limited to 24 students by State of Arizona regulation.

### Emergency Medical Technology Intermediate — Certificate for Direct Employment

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
EMT 170*	ALS Operations (n/o) . . . . .	1
EMT 205*	ALS Pharmacology and Medication Administration (F) . . . . .	3
EMT 217*	I-EMT National Registry Preparatory Course (F) . . . . .	2
EMT 219*	ALS Foundations (F) . . . . .	1.5
EMT 221*	ALS Airway and Ventilation (F) . . . . .	1.5
EMT 222*	ALS Patient Assessment and Assessment Based Management (F) . . . . .	1.5
EMT 223*	ALS Trauma Emergencies and Systems (F) . . . . .	2
EMT 224*	ALS Medical Emergencies (F) . . . . .	4
EMT 225*	ALS Special Medical Considerations (F) . . . . .	2
EMT 227*	ALS Practicum: Clinical Lab . . . . .	3
EMT 228*	ALS Practicum: Vehicular Lab . . . . .	3
EMT 230	Basic ECG Interpretation (F) . . . . .	1.5
EMT 250	Advanced Cardiac Care (F) . . . . .	1.5
EMT 252 or EMT 258	Pediatric Advanced Life Support (F) Pediatric Education for Pre-Hospital Professionals (Sp) . . . . .	1.5
<b>Subtotal . . . . .</b>		<b>29</b>
<b>Total credits as displayed . . . . .</b>		<b>29</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

### Emergency Medical Technology — Paramedic Certificate for Direct Employment

The paramedic certificate program increases the knowledge and skill of the I-EMT and the EMT-B in advanced life support including endotracheal intubation, cardiac arrhythmia recognition and intervention. The program also includes drug therapy, invasive procedures, advanced airway management, and I.V. therapy. This certificate requires six credit hours of general education course work.

#### General Education Requirements - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 3  
See a Public Safety and Emergency Services Institute (PSESI) advisor, phone contact (520) 206-6350.

Analysis and Critical Thinking Requirement . . . . . 3  
See a Public Safety and Emergency Services Institute (PSESI) advisor, phone contact (520) 206-6350.

**Subtotal . . . . . 6**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		

All of the core courses require acceptance into the Advanced Paramedic Program.

EMT 170*	ALS Operations (n/o) . . . . .	1
EMT 205*	ALS Pharmacology and Medication Administration (F) . . . . .	3
EMT 214*	ALS Advanced Special Considerations (F) . . . . .	2.5
EMT 218*	Paramedic National Registry Preparatory Course (F) . . . . .	3.5
EMT 219*	ALS Foundations (F) . . . . .	1.5

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

EMT 221*	ALS Airway and Ventilation (F)	1.5
EMT 222*	ALS Patient Assessment and Assessment Based Management (F)	1.5
EMT 223*	ALS Trauma Emergencies and Systems (F)	2
EMT 224*	ALS Medical Emergencies (F)	4
EMT 225*	ALS Special Medical Considerations (F)	2
EMT 227*	ALS Practicum: Clinical Lab	3
EMT 228*	ALS Practicum: Vehicular Lab	3
EMT 230*	Basic ECG Interpretation (F)	1.5
EMT 242*	ALS Advanced Foundations (F)	2
EMT 244*	ALS Advanced Medical Emergencies (F)	2.5
EMT 247*	ALS Advanced Practicum: Clinical Lab	2
EMT 248*	ALS Advanced Practicum: Vehicular Lab	3
EMT 250*	Advanced Cardiac Care (F)	1.5
EMT 252* or EMT 258*	Pediatric Advanced Life Support (F) Pediatric Education for Pre-Hospital Professionals (Sp)	1.5
EMT 254*	Advanced ECG Interpretation	3
EMT 263*	Tox-Medic (F)	1.5
EMT 295*	ALS Independent Research (F)	3
<b>Subtotal</b>		<b>50</b>
<b>Total credits as displayed</b>		<b>56</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Emergency Medical Technology — Paramedic — Associate of Applied Science Degree for Direct Employment

The Associate of Applied Science program increases the knowledge and skill of the I-EMT and the EMT-B in advanced life support including endotracheal intubation, cardiac arrhythmia recognition and intervention. The program also includes drug therapy, invasive procedures, advanced airway management, and I.V. therapy.

### General Education Requirements - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See a Public Safety and Emergency Services Institute (PSESI) advisor, phone contact (520) 206-6350.

Analysis and Critical Thinking Requirement . . . . . 6  
See a Public Safety and Emergency Services Institute (PSESI) advisor, phone contact (520) 206-6350.

Humanities and Social Science Requirement . . . . . 6  
See General Education section, Requirements for Direct Employment Programs

Computer and Information Literacy Requirement . . . . . 1-3  
See General Education section, Requirements for Direct Employment Programs

**Subtotal** . . . . . **19-21**



Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

All of the core courses require acceptance into the Advanced Paramedic Program.

EMT 170*	ALS Operations (n/o)	1
EMT 205*	ALS Pharmacology and Medication Administration (F)	3
EMT 214*	ALS Advanced Special Considerations (F)	2.5
EMT 218*	Paramedic National Registry Preparatory Course (F)	3.5
EMT 219*	ALS Foundations (F)	1.5
EMT 221*	ALS Airway and Ventilation (F)	1.5
EMT 222*	ALS Patient Assessment and Assessment Based Management (F)	1.5
EMT 223*	ALS Trauma Emergencies and Systems (F)	2
EMT 224*	ALS Medical Emergencies (F)	4
EMT 225*	ALS Special Medical Considerations (F)	2
EMT 227*	ALS Practicum: Clinical Lab	3
EMT 228*	ALS Practicum: Vehicular Lab	3
EMT 230*	Basic ECG Interpretation (F)	1.5
EMT 242*	ALS Advanced Foundations (F)	2
EMT 244*	ALS Advanced Medical Emergencies (F)	2.5
EMT 247*	ALS Advanced Practicum: Clinical Lab	2
EMT 248*	ALS Advanced Practicum: Vehicular Lab	3
EMT 250	Advanced Cardiac Care	1.5
EMT 252 or EMT 258	Pediatric Advanced Life Support (F) Pediatric Education for Pre-Hospital Professionals (Sp)	1.5
EMT 254	Advanced ECG Interpretation	3
EMT 263	Tox-Medic	1.5
EMT 295*	ALS Independent Research	3

**Subtotal** . . . . . **50**

**Total credits as displayed** . . . . . **69-71§**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



# Environmental Technology

## Environmental Technology — Hazardous Materials Technician — Certificate for Direct Employment

This certificate provides preparation for Hazardous Materials Technician Certification and employment opportunities in the field of Hazardous Material Technician and provides the foundation for workforce development of emergency response skills.

### Acceptance into the program:

- Completion of college admission requirements.
- Completion of a minimum of 32 hours of hazardous materials training at the Operations Level.
- Completion of two years emergency response experience.
- Proof of ability to supply Structural Fire Protective Clothing (Turnouts) and air packs for all drills.
- Proof of medical evaluation and approval to wear respiratory protection.

This program is not open to the general public. Please contact the Public Safety and Emergency Services Institute at Community Campus for more information — (520) 206-6350.

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

All of the core courses require acceptance into the Advanced Paramedic Program.

EVT 260*	Hazardous Materials Technician	10.5
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**Subtotal** ..... 10.5

**Total credits as displayed** ..... 10.5

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Basic Remediation Technology Certificate

This certificate provides basic knowledge for the entry-level technician for field-oriented employment in environmental monitoring, site remediation and reclamation, pollution monitoring, resource reclamation, environmental auditing or environmental impact assessing. Typical employers include private industry, engineering consultants, environmental consultants and government agencies charged with regulating and monitoring the environment.

This certificate meets the needs of business, industry, and government agencies. It can be customized for apprenticeship, workforce development, and special clientele in need of a custom credential. The intent of the certificate is to provide students an environmental body of knowledge and skill that is coherent and provides opportunities for career advancement.

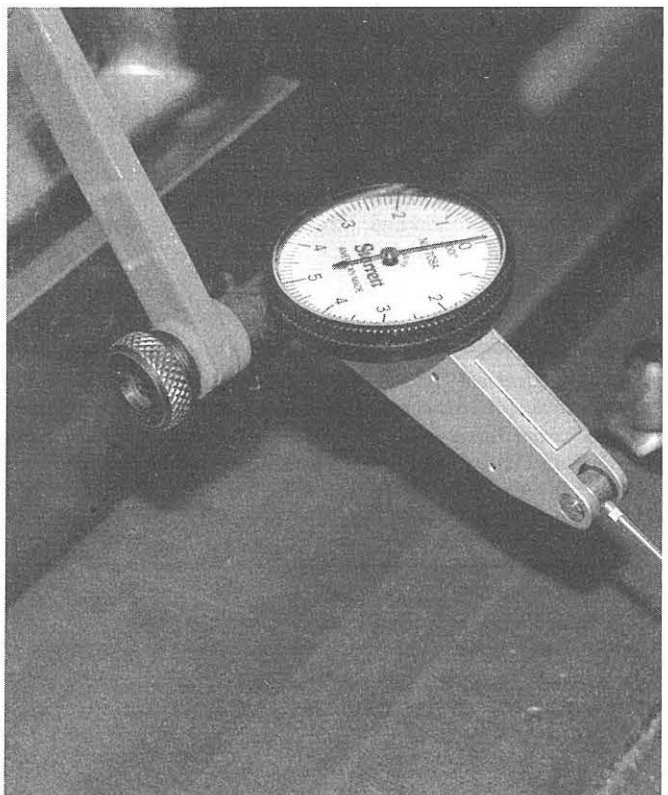
**This program is not open to the general public.** Please contact the Arizona State Environmental Technology Training Center (ASETT) for more information — (520) 206-6363.

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

EVT 103	Basic Remediation Technology	12
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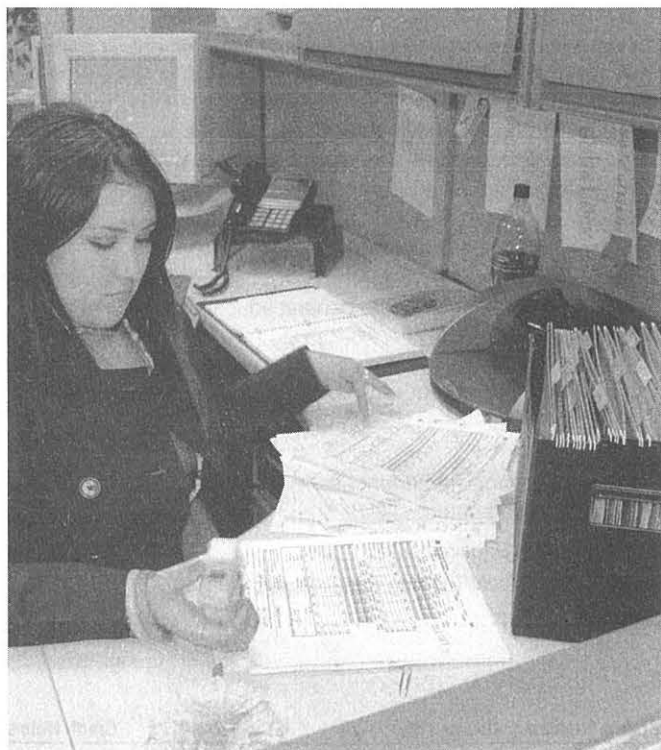
**Total credits as displayed** ..... 12



F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

# Insurance

This program is open only to qualifying individuals. Please contact Workforce Development at the Community Campus for more information — (520) 206-6569.



This program is approved by:

- Independent Insurance Agents and Brokers Association of Arizona
  - The Society of Certified Insurance Service Representatives
  - The National Alliance for Insurance Education and Research
- Students who complete the program will be issued a certificate for direct employment by Pima Community College. Upon successful completion of the program the graduate is eligible to take the required State Licensure exams.

## Acceptance into the program:

- Completion of college admission requirements.
- Completion of acceptance criteria as established by the Independent Insurance Agents and Brokers of Arizona and Pima Community College.
- The Insurance Service Excellence Certificate for Direct Employment is fully endorsed by the Independent Insurance Agents and Brokers of Arizona. This certificate also provides the core foundation coursework for the Associate of Applied Science in Business and Industry Technology.

This comprehensive program is designed to prepare current and future insurance employees for the challenges found in a competitive insurance environment. Primary emphasis is to provide the students with the essential business skills needed to develop a professional career in insurance. This program is also intended to help students develop a clear sense of the scope of the requirements for customer service representative success.

The Associate of Applied Science Business and Industry Technology with coursework in Insurance Service Excellence incorporates insurance and business knowledge, communications, Information Technology skills, and it is structured to lead students to competence in other areas. The Associate of Applied Science Business and Industry Technology is designed as a two-year foundation leading to pursuit of a Bachelor of Applied Science.

## General Education Requirements - A grade of C or better is required for graduation.

Reading Requirement\* - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement\* . . . . . 3  
WRT 101 or WRT 107. See General Education section, page 56

Analysis and Critical Thinking Requirement . . . . . 3  
See General Education section, page 56  
If Math satisfied, recommend: STU 103 or PHI 120 or REA 112

**Subtotal . . . . . 6**

Course Number	Course Title	Credit Hours
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## Required Core Courses - A grade of C or better is required for graduation.

INS 101	Introduction to Insurance . . . . .	3
INS 102	Business Insurance Coverage . . . . .	3
INS 103	Insurance Computer Fundamentals . . . . .	1
INS 106	Accounting for Insurance Professionals . . . . .	2
INS 110	ACORD Standards . . . . .	2
INS 120	Insurance Service Excellence Practicum . . . . .	4
INS 210*	Property and Casualty Licensing . . . . .	3
INS 220*	Surplus Lines Licensing . . . . .	1
INS 225	Dynamics of Service . . . . .	1
INS 226	Insurance Agency Ethics . . . . .	2
INS 230*	Certified Insurance Service Representative . . . . .	5
SPE 102	Introduction to Speech Communication (F, Sp, S) . . .	3

**Total credits as displayed . . . . . 36**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Law Enforcement

For more information about the Law Enforcement programs, please contact the Public Safety and Emergency Services Institute at Community Campus — (520) 206-6350.

### Basic Law Enforcement-Supervision — Certificate for Direct Employment

The law enforcement programs consist of skills which are basic to several law enforcement and public safety careers, commissioned law enforcement officer training, and supervision skills. They are all identified by the LEN prefix.

Students must be certified law enforcement officers or receive special permission prior to admittance into this program.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
LEN 270*	Principles of Law Enforcement Supervision (n/o) . . .	3
LEN 271*	Skills for Community-Oriented Policing (n/o) . . . . .	4
LEN 274*	Supervision of Community-Oriented Policing (n/o) . .	3
LEN 290*	Law Enforcement Field Experience (n/o) . . . . .	3
<b>Subtotal . . . . .</b>		<b>13</b>

#### Required Support Courses

CSA 101	Computer Fundamentals (F, Sp, S) . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>16</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

### Basic Law Enforcement — Certificate for Direct Employment

Admission to the Law Enforcement Certificate for Direct Employment programs requires employment and sponsorship of a public or private law enforcement agency. Students seeking admission to this certificate program must complete the following basic requirements before they can begin the program. Courses are scheduled based on agency requirements. The law enforcement programs consist of skills, which are basic to several law enforcement and public safety careers.

#### Required prerequisites:

- High school diploma or GED
- At least 21 years of age upon completion of the academy
- No felony convictions
- U. S. Citizen
- Must possess a valid driver's license
- Physical requirement test
- Written evaluation
- Psychological evaluation
- Oral Board review
- Background investigation
- Medical evaluation
- Polygraph exam
- Other requirements that are specific to Arizona Peace Officer

#### Standards and Training Board (AZ POST)

All students must complete the reading requirement as part of their general education requirement. To fulfill this requirement, students may either:

- Test higher than REA 091 on PCC assessment
- Complete REA 091 with a "C" grade or higher before their first semester of general education coursework, OR
- Enroll in REA 091 while they are taking their first semester of general education coursework.
- Students who test into REA 081 on PCC assessment may enroll in REA 081 and enroll in one general education course at the same time.

Completion of the program meets and exceeds the minimum P.O.S.T. requirements for entry-level employment as an Arizona peace officer.

#### General Education Requirements - A grade of C or better is required for graduation.

Communication Requirement . . . . .	3
Analysis and Critical Thinking Requirement . . . . .	3
<b>Subtotal . . . . .</b>	<b>6</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
LEN 105	Ethics in Law Enforcement (n/o) . . . . .	3
LEN 110	Multicultural Issues in Law Enforcement (n/o) . . . . .	3
LEN 115	Interpersonal Relations in Law Enforcement (n/o) . .	3
LEN 120	Introduction to Law Enforcement (n/o) . . . . .	1
LEN 125	Law and Legal Matters I (n/o) . . . . .	3
LEN 126	Law and Legal Matters II (n/o) . . . . .	3
LEN 130	Patrol Procedures (n/o) . . . . .	3
LEN 135	Traffic Enforcement and Investigation (n/o) . . . . .	3
LEN 140	Criminal Investigation (n/o) . . . . .	4
LEN 145	Community and Police Relations (n/o) . . . . .	2
LEN 150	Records and Reports . . . . .	3
LEN 205	Police Proficiency Skills I . . . . .	4
LEN 206	Police Proficiency Skills II . . . . .	4
LEN 207	Police Proficiency Skills III . . . . .	4
LEN 208	Police Proficiency Skills IV . . . . .	4
<b>Subtotal . . . . .</b>		<b>47</b>
<b>Total . . . . .</b>		<b>53</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Law Enforcement — Associate of Applied Science

Complete required General Education, Core, and Support courses.

### General Education Requirements - A grade of C or better is required for graduation.

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . .	6
See General Education Section, page 56	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education Section, page 56	
Humanities and Social Science Requirement . . . . .	6
See General Education Section, page 56	
Computer Information and Literacy Requirement . . . . .	1-3
See General Education Section, page 56	
<b>Subtotal . . . . .</b>	<b>19-21</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

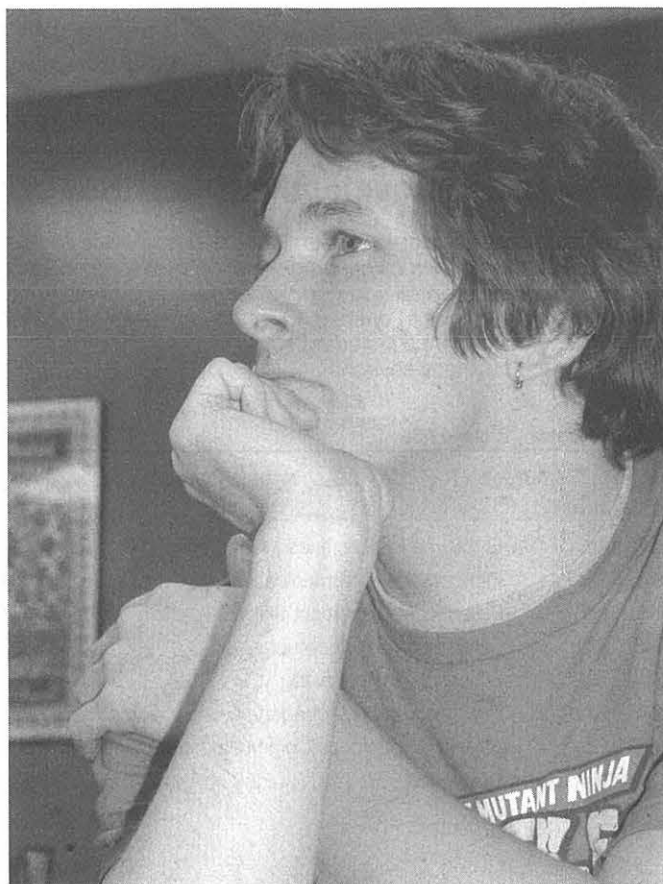
LEN 120	Introduction to Law Enforcement (n/o)	1
LEN 125	Law and Legal Matters I (n/o)	3
LEN 126	Law and Legal Matters II (n/o)	3
LEN 130	Patrol Procedures (n/o)	3
LEN 140	Criminal Investigation (n/o)	4
LEN 145	Community and Police Relations (n/o)	2
LEN 150	Records and Reports	3
LEN 205	Police Proficiency Skills I	4
LEN 206	Police Proficiency Skills II	4
LEN 207	Police Proficiency Skills III	4
LEN 208	Police Proficiency Skills IV	4
<b>Subtotal</b>		<b>35</b>

### Required Support Courses

Select 6-12 credits below:

AJS 101	Introduction to Administration of Justice Systems (F, Sp, S) . . . . .	3
AJS 124	Ethics and the Administration of Justice (F, Sp) . . . . .	3
AJS 225	Crime and Delinquency (F, Sp) . . . . .	3
AJS 246	Race and Ethnicity Issues in the Administration of Justice (F, Sp) . . . . .	3
<b>Subtotal</b> . . . . .		<b>6-12</b>
<b>Total</b> . . . . .		<b>60-68§</b>

§ This degree may be completed with less than the credits displayed as long as the course requirements are fulfilled with a minimum of 60 credits.



## Leadership

### Leadership Development Certificate

Enhance leadership skills in the business environment. Includes leadership foundation skills: introduction to finance, ethics, leadership, and employee performance management. This is a workforce certificate specifically customized to meet employer needs.

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

BMS 124	Employee Performance Management . . . . .	.75
BMS 127	Essential Management Skills . . . . .	.75 – 1.00
BMS 134	Leadership Development . . . . .	1.50
BMS 138	Presentation Skills . . . . .	.75 – 1.00
BMS 142	Financial Management Basics . . . . .	1.50
BMS 158A	Ethical Decision-Making . . . . .	.25
BMS 158B	Managerial Business Ethics . . . . .	.25
<b>Total Credits as Displayed . . . . .</b>		<b>6</b>

## Management

### Management Development Certificate

The Management Development Certificate is designed to assist business in growing their own next generation of management. This certificate will work to turn good employees into great employees. This series of courses touch on key areas of professional performance including ethics and legal issues relevant to the business environment.

Course Number	Course Title	Credit Hours
<b>Required Courses - A grade of C or better is required for graduation.</b>		
BMS 124	Employee Performance Management	1
BMS 126	Interpersonal Communication	.50
BMS 127	Essential Management Skills	1
BMS 134	Leadership Development	1.50
BMS 158A	Ethical Decision Making	.25
BMS 158B	Business Ethics: Managerial	.25
BMS 163	Advanced Business Communication	1.50
<b>Total Credits as Displayed</b>		<b>6</b>

## Manufacturing Production

This program area is open only to qualifying individuals. Please contact Workforce Development at the Community Campus for more information — (520) 206-6569.

### Manufacturing Production — Certificate for Direct Employment

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ASP 101*	Assembly Production Processing (F, Sp)	4
ASP 111	Assembly Tools, Instruments, and Machines (F, Sp)	4
TEC 100	Introduction to Electronics Technology (F)	3
TEC 127	Printed Circuit Board Solder Assembly (Sp)	3
ELE	Technical Electives	6
<b>Total credits as displayed</b>		<b>20</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

### Process Technician — Certificate for Direct Employment

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ASP 101*	Assembly Production Processing (F, Sp)	4
ASP 111	Assembly Tools, Instruments, and Machines (F, Sp)	4
AVM 130*	Aircraft Composite Repair (Sp)	5
CAD 117	Print Reading and Sketching for Manufacturing (F, Sp)	4
PRO 116*	Advanced Painting and Coating of Metals (n/o)	3
<b>Total credits as displayed</b>		<b>23</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

### Advanced Mechanic Services — Certificate for Direct Employment

**General Education Requirements - A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 3  
See General Education section, Requirements for Direct Employment Programs

Analysis and Critical Thinking Requirement . . . . . 3  
See General Education section, Requirements for Direct Employment Programs

**Subtotal** . . . . . 6

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ASP 103*	Hydraulic Systems (F)	3
ASP 105*	Pneumatic Systems (F)	3
ASP 107*	Vacuum Systems (Sp)	3
BCT 126*	HVAC Electricity, Circuitry, and Controls (n/o)	4
BCT 132*	Residential and Industrial HVAC I (F, Sp, S)	4
BCT 172*	Building and Construction Technologies Electrical I (F, Sp, S)	4
CAD 101*	CAD Drafting Fundamentals (F, Sp, S)	4
MAC 110*	Manual Machine Shop (F, Sp, S)	4
MAC 125*	Mechanical Inspection (F, Sp)	4
WLD 150	Oxyacetylene Welding (Sp)	3
<b>Subtotal</b>		<b>36</b>
<b>Total credits as displayed</b>		<b>42</b>

\* This course has a prerequisite, co-requisite, or recommendation.

## Advanced Product Test — Certificate for Direct Employment

**General Education Requirements - A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 3  
See General Education section, Requirements for Direct Employment Programs

Analysis and Critical Thinking Requirement . . . . . 3  
See General Education section, Requirements for Direct Employment Programs

**Subtotal. . . . . 6**

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

TEC 112*	Applied Math II (n/o)	3
TEC 113*	Problem Solving for Electronics and Optics (F)	3
TEC 121*	Basic Electric and Magnetic Properties (F)	3
TEC 122*	Applied Semiconductor Devices (Sp)	3
TEC 122LB*	Applied Semiconductor Devices (Sp)	1
TEC 123*	Digital Circuits and Computers (F)	3
TEC 123LB*	Digital Circuits and Computers (F)	1
TEC 124*	Modern Electronic Communications (n/o)	4
TEC 125*	AC Networks with Phasors (Sp)	3
TEC 125LB*	AC Networks with Phasors Lab (Sp)	1
TEC 128*	Electronic Measurements (Sp)	2
TEC 128LB*	Electronic Measurements Lab (Sp)	1
TEC 160*	Microcomputers and Programming Techniques (F)	3
TEC 228*	RF and Microwave Devices (n/o)	3
TEC 228LB*	RF and Microwave Devices Lab (n/o)	1
TEC 250	Digital Devices (F)	3
TEC 250LB	Digital Devices Lab (F)	1

**Subtotal. . . . . 39**

**Total credits as displayed . . . . . 45**

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Manufacturing Production Technology — Associate of Applied Science Degree for Direct Employment

This program is designed to prepare students for entry level employment in production occupations such as: manufacturing micro specialist, product test specialist, product technology, mechanic service specialist, or as a foundation for higher degrees in mechanical or manufacturing engineering.

**Major Code:** MFG

**Program Code:** WDFMFG

**Concentration Code:** see options below

**General Education Requirements – A grade of C or better is required for graduation.**

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

Communication Requirement . . . . . 6  
See General Education section, Requirements for Direct Employment Programs

Analysis and Critical Thinking Requirement . . . . . 6  
GTM 105 and TEC 101 recommended  
See General Education section, Requirements for Direct Employment Programs

Humanities and Social Science Requirement. . . . . 6  
See General Education section, Requirements for Direct Employment Programs

Computer and Information Literacy Requirement . . . . . 1-3  
CAD 101 is recommended  
See General Education section, Requirements for Direct Employment Programs

**Subtotal . . . . . 19-21**

Course Number	Course Title	Credit Hours
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**Concentrations - A grade of C or better is required for graduation.**

Choose one of the following concentrations:

(Department chair or faculty advisor approval is recommended in the selection of the program concentration.)

**Process Technician Concentration Code: MFGS**

ASP 101*	Assembly Production Processing (F, Sp)	4
ASP 111*	Assembly Tools, Instruments, & Machines (F, Sp)	4
AVM 130*	Aircraft Composite Repair (Sp)	5
CAD 117	Print Reading and Sketching for Manufacturing (F, Sp)	4
PRO 106*	Painting and Coating of Metals (F, Sp)	3
PRO 116*	Advanced Painting and Coating of Metals (n/o)	3
ELE	Technical Electives	18
<b>Subtotal.</b>		<b>41</b>



**Advanced Product Test****Concentration Code: MFGT**

TEC	112*	Applied Math II (n/o)	3
TEC	113*	Problem Solving for Electronics and Optics (F)	3
TEC	121*	Basic Electric and Magnetic Properties (F)	3
TEC	122*	Applied Semiconductor Devices (Sp)	3
TEC	123*	Digital Circuits and Computers (F)	3
TEC	124*	Digital Circuits and Computers (n/o)	4
TEC	125*	AC Networks with Phasors (Sp)	3
TEC	128*	Electronic Measurements (Sp)	2
TEC	160*	Microcomputers and Programming Techniques (F)	3
TEC	228*	RF and Microwave Devices (n/o)	3
TEC	250*	Digital Devices (F)	3
ELE		Technical Electives	6
<b>Subtotal</b>			<b>39</b>

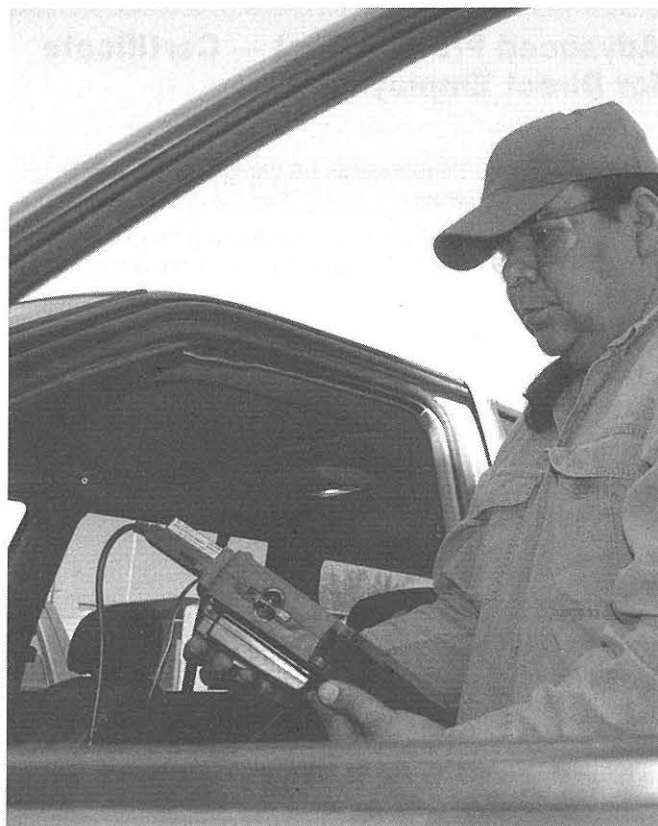
**Advanced Mechanic Services****Concentration Code: MFGM**

ASP	103*	Hydraulic Systems (F)	3
ASP	105*	Pneumatic Systems (F)	3
ASP	107*	Vacuum Systems (Sp)	3
CAD	101*	Computer Aided Drafting Fundamentals (F, Sp, S)	4
BCT	126*	HVAC Electricity, Circuitry, and Controls (n/o)	4
BCT	132*	Residential and Industrial HVAC I (F, Sp, S)	4
BCT	172	Building and Construction Technologies Electrical I (F, Sp, S)	4
MAC	110	Manual Machine Shop (F, Sp, S)	4
MAC	125*	Mechanical Inspection (F, Sp)	4
MAC	150*	Computer Numerical Control (CNC) Mill Programming I (F, Sp)	4
ELE		Technical Electives	4
<b>Subtotal</b>			<b>41</b>

**Manufacturing Production****Concentration Code: MFGP**

ASP	101*	Assembly Production Processing (F, Sp)	4
ASP	111*	Assembly Tools, Instruments, and Machines (F, Sp)	4
TEC	100	Introduction to Electronics Technology (F)	3
TEC	127*	Printed Circuit Board Solder Assembly (Sp)	3
ELE		Technical Electives	4
<b>Subtotal</b>			<b>41</b>
<b>Total credits as displayed</b>			<b>60\$</b>

\* This course has a prerequisite, co-requisite, or recommendation. See course description section.



## Safety

### Safety: Metropolitan Emergency Response System (MERS) — Certificate for Direct Employment

The safety certificate options provide intensive training to Public Safety Personnel who are deployed and/or activated during an incident of domestic terrorism involving weapons of mass destruction. Students must be employed by a sponsoring agency in order to enroll in this certificate sequence.

**Community Track****Required Core Courses - A grade of C or better is required for graduation.**

SAF	101*	Basic Concepts of Preparedness for Emergencies	.25
SAF	202*	Emergency Response to Terrorism-Basic Concepts	.50-1.00
SAF	205*	Patterns of Domestic and Global Terrorism	.25-.50
SAF	ELE*	Select any Safety (SAF) Prefix courses	1.75-5.25
Choose one of the following:			.25-1.00
SAF	103*	School Preparedness	1.00
SAF	105*	Community Preparedness	.25
SAF	107*	Industry Preparedness	1.00

**Total credits as displayed** . . . . . **3-8**

F= Fall | Sp= Spring | S= Summer | n/o= May be offered this year, check class schedule

### Fire Service Track

**Required Core Courses - A grade of C or better is required for graduation.**

SAF 202*	Emergency Response to Terrorism-Basic Concepts . . . . .	.50-1.00
SAF 204*	Incident Command System (ICS) . . . . .	.25-.50
SAF 232*	Incident Command systems for Emergency Medical Services . . . . .	.50
SAF 234*	Simple Triage and Rapid Treatment (START) Triage. . . . .	.25-.50
SAF 243*	Critical Incident Stress Management (CISM) . . . . .	.25-.50
SAF ELE*	Select any Safety (SAF) Prefix Courses. . . . .	1.25-5.00
<b>Total credits as displayed . . . . .</b>		<b>3.00-8.00</b>

### Law Enforcement Track

**Required Core Courses - A grade of C or better is required for graduation.**

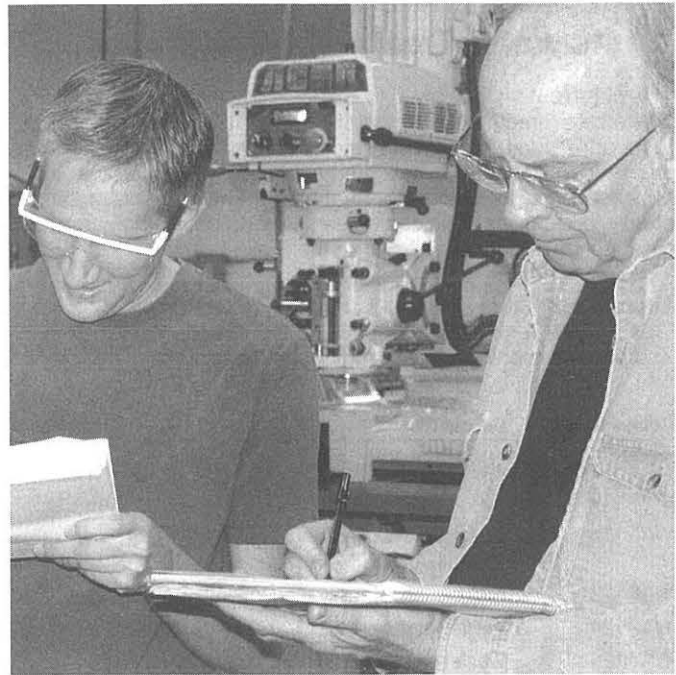
SAF 202*	Emergency Response to Terrorism-Basic Concepts . . . . .	.5-1.00
SAF 204*	Incident Command System (ICS) . . . . .	.25-.50
SAF 241*	Target Vulnerability and Structural Threat Assessment . . . . .	.50
SAF 242*	Traffic, Crowds, and Protective Equipment . . . . .	.25-.50
SAF 243*	Critical Incident Stress Management (CISM) . . . . .	.25-.50
SAF ELE*	Select any Safety (SAF) Prefix Courses. . . . .	1.25-8.00
<b>Total credits as displayed . . . . .</b>		<b>3-11</b>

### Medical Track

**Required Core Courses - A grade of C or better is required for graduation.**

SAF 202*	Emergency Response to Terrorism-Basic Concepts . . . . .	.50-1.00
SAF 243*	Critical Incident Stress Management (CISM) . . . . .	.25-.50
SAF 250*	Medical Response to Weapons of Mass Destruction. . . . .	.25
SAF 251*	Infection Control . . . . .	.25
SAF 252*	Agents of Weapons of Mass Destruction . . . . .	.25-1.00
SAF 253*	Emergency Patient Decontamination . . . . .	.25-.50
Select Safety (SAF) prefix courses or FSC 153 Hazardous Materials . . . . .		1.25-8.00
<b>Total credits as displayed. . . . .</b>		<b>3-11.50</b>

§ A minimum of 3.00 credits is required for all concentrations.



## Water and Wastewater

These programs are not open to the general public. Please contact the Arizona State Environmental Technology Training Center (ASETT) for more information — (520) 206-6363.

The Wastewater Certificates are designed to enhance employee wastewater operations, collections, treatment, maintenance, and safety skills in the treatment and operations of a wastewater treatment facility.

### Wastewater Operations Certificate

This certificate is designed to enhance the basic skills in wastewater treatment. This certificate helps prepare employees to meet Arizona State Wastewater Operator Certification requirements.

**Information:** Students should complete the Wastewater Operations Certificate prior to taking the Wastewater Treatment and Wastewater Treatment Technology Certificates.

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

WAT 110	Wastewater Collection Systems Operations and Maintenance I . . . . .	3
WAT 120	Wastewater Operations Regulatory Requirements and Ethical Requirements . . . . .	2
WAT 121	Safety for Wastewater Operations. . . . .	2
WAT 123	Waste and Wastewater Basic Math. . . . .	3
WAT 125	Wastewater Preliminary, Head-work and Primary Clarifier Treatment . . . . .	3
<b>Total Credits as Displayed . . . . .</b>		<b>13</b>

## Wastewater Treatment Certificate

This certificate is designed to enhance the intermediate skills in wastewater treatment. This certificate helps prepare employees to meet Arizona State Wastewater Operator Certification requirements. This program is designed for wastewater operators to enhance skills in wastewater treatment and waste and metal stream processes. This certificate helps prepare employees to meet certificate requirements for the State of Arizona Wastewater Operation Certification.

**Information:** Students should complete the Wastewater Operations Certificate prior to taking the Wastewater Treatment and Wastewater Treatment Technology Certificates.

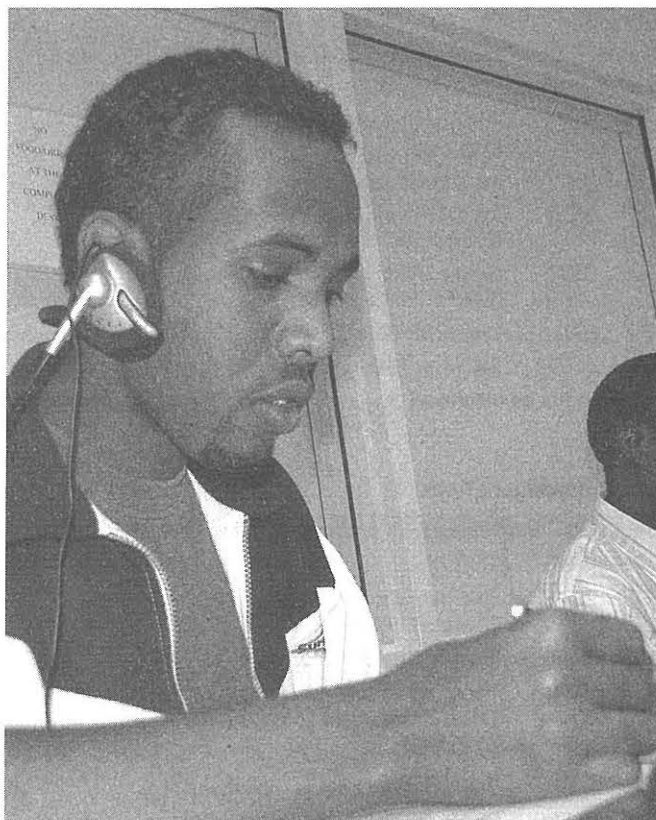
Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
WAT 111	Wastewater Collection Systems Operations and Maintenance II. ....	3
WAT 112	Pretreatment Facility Inspection .....	4
WAT 124	Wastewater Applied Math .....	4
WAT 126	Wastewater Biological Treatment Processes .....	3
WAT 141	Treatment of Metal Waste Streams .....	2
<b>Total credits as displayed .....</b>		<b>16</b>

## Wastewater Treatment Technology Certificate

This certificate is designed to enhance the advanced skills in wastewater treatment. This certificate helps prepare employees to meet Arizona State Wastewater Operator Certification requirements. This program is designed for wastewater operators to enhance skills in advanced wastewater treatment and processes. This certificate helps prepare employees to meet certificate requirements for the State of Arizona Wastewater Operation Certification.

**Information:** Students should complete the Wastewater Operations and Wastewater Treatment Certificate prior to taking this certificate or demonstrate Wastewater Operations and Wastewater Treatment practical experience.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
WAT 122	Wastewater Hydraulics .....	3
WAT 127	Advanced Wastewater Biological Treatment Processes .....	4
WAT 129	Wastewater Laboratory Operations and Skills .....	2
WAT 130	Wastewater Ops: Bio-Solids Treatment, Management, Handling I. ....	4
<b>Total Credits as displayed .....</b>		<b>13</b>



## Workplace Skills

### Workplace Development Certificate

This Workplace Development Certificate is designed to assist businesses in growing their own personnel's workplace skills. This certificate will work to turn good employees into great employees. This series of courses touch on key areas of professional performance including writing, teamwork, communication, and organization relevant to the business environment.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BMS 121	Business Writing .....	2
BMS 126	Interpersonal Communication .....	.75
BMS 140	Stress Management .....	.25
BMS 141	Teamwork Skills .....	2
BMS 143	Basic Organization Skills .....	.50
BMS 158C	Business Ethics: Organization Ethics .....	.25
BMS 158D	Business Ethics: Office Protocol .....	.25
<b>Total .....</b>		<b>6</b>



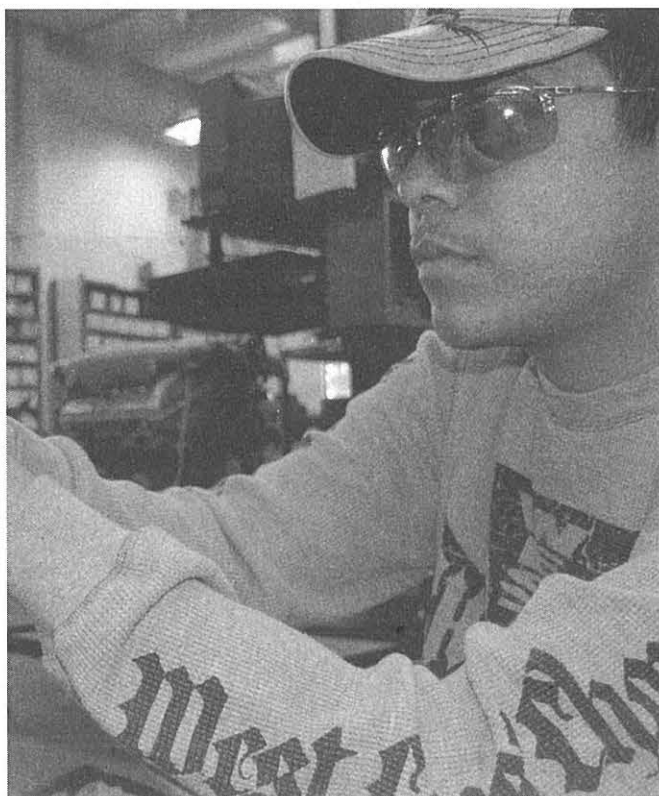
# Apprentice Related Instruction

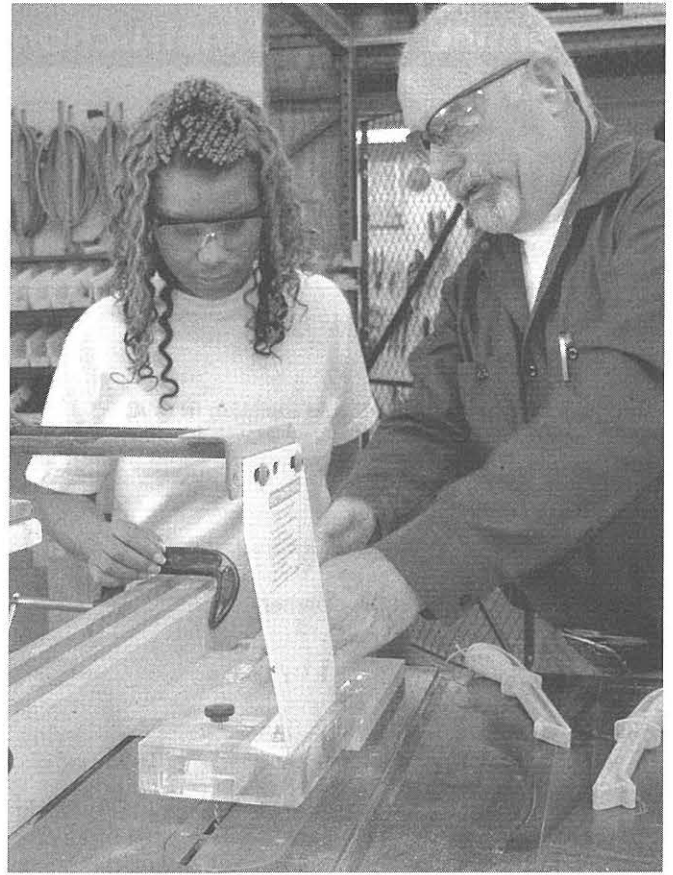
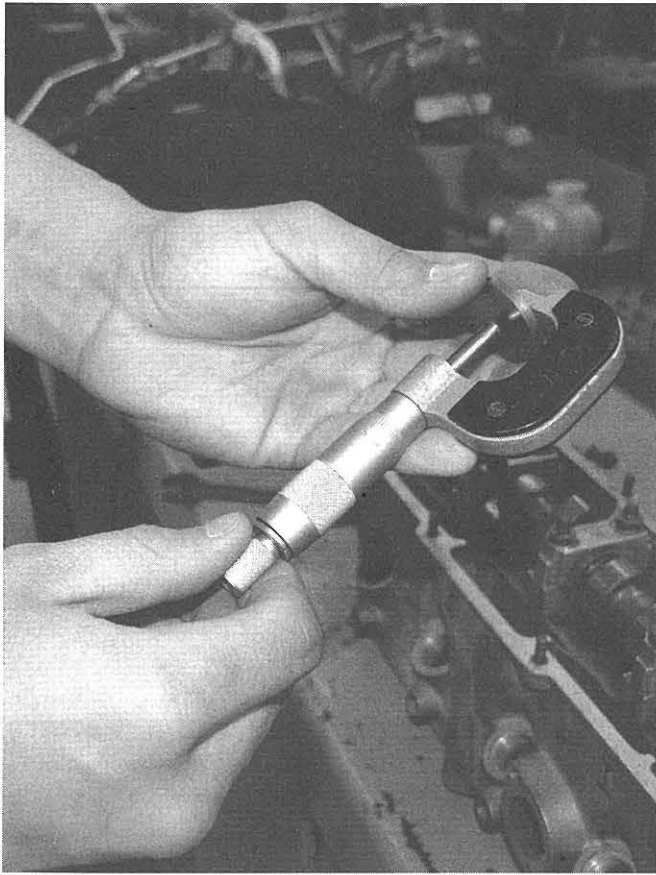
Pima Community College works jointly with local and state apprenticeship groups to offer related instruction in a number of apprenticeship programs. Before students may enroll for apprentice related instruction, they must be registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training, and the organization operating a specific training program. Apprentice related instruction at Pima Community College is offered in these areas and provides foundation courses towards the associate of applied science degree.

Agency	Phone Number	Course Prefix
<b>Sheet Metal Workers Local Union 359</b>		
Sheet Metal .....	(602) 273-1388 or (602) 920-2834	SMA
<b>National Tooling and Machining Association (NTMA)</b>		
Contact Division Dean of Industrial and Technical Education at PCC		
Machinist .....	(520) 206-7134	MAC
<b>Arizona Builders Alliance (ABA)</b>		
Electrical, Carpentry, Building and Construction .....	(520) 881-7930	BCT
<b>Pascua Yaqui Training and Development</b>		
Electrical .....	(520) 879-5844	ELT

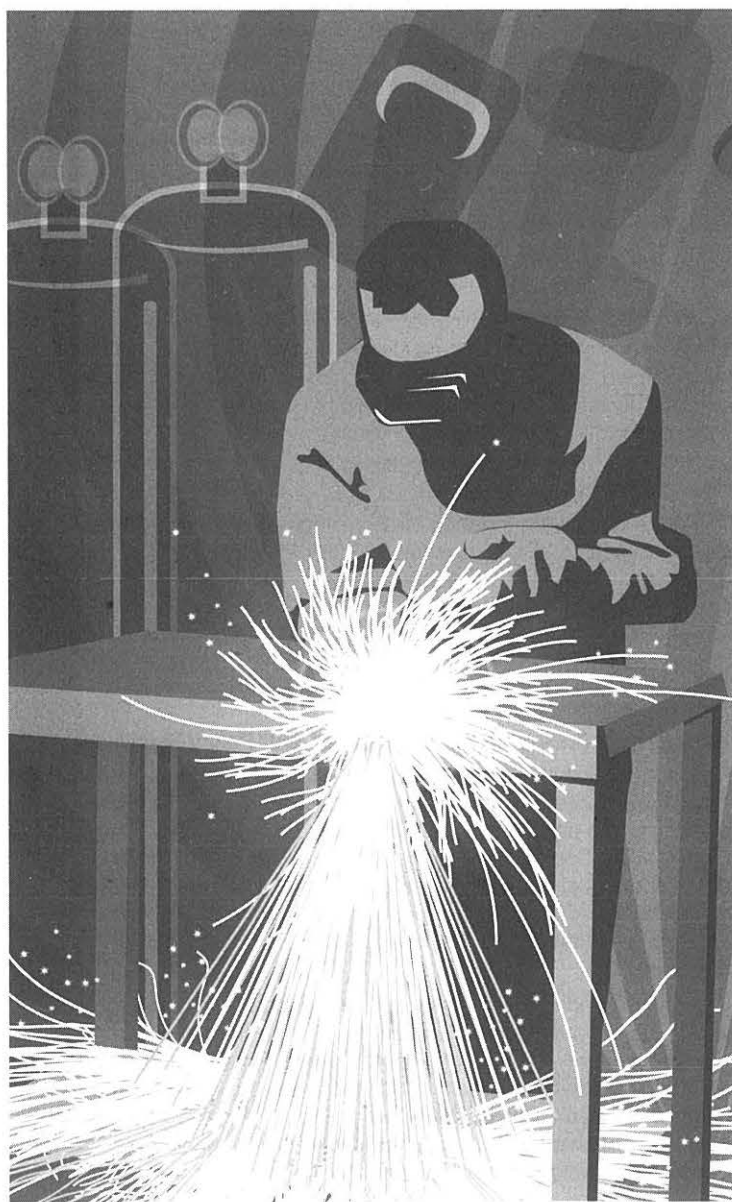
## Degree Program

Those working to gain the Business and Industry Technology Associate of Applied Science degree (trade and industrial technology option) must meet the minimum degree requirement of 64 credit hours. Students must complete 46 credit hours of apprentice-related instruction, and/or college technical courses as well as satisfy the college reading requirement. The college technical courses must be approved by the department chair.





# Selected Policies, Governance and Faculty





## Selected Board Policies

The following policies address the College's compliance with a variety of federal anti-discrimination laws and also give details on where complaints should be filed. The College makes every effort to resolve the complaints of persons who feel that their rights have been infringed upon or that they have been discriminated against.

### Affirmative Action/Equal Opportunity

Pima County Community College District reaffirms its commitment to affirmative action and equal employment opportunity for all qualified persons without regard to race, color, national origin, religion, sex, sexual orientation, disability, age, or on the basis of membership as set forth in USERRA, or on any other basis which is proscribed by law.

It is the policy of Pima County Community College District that equal employment opportunity can only be achieved through demonstrated leadership and aggressive implementation of a viable affirmative action program. Therefore, the Pima County Community College District Affirmative Action and Equal Employment Opportunity Policy sets forth responsibilities for administrators, supervisors, faculty, staff, and all other members of the College. This policy shall be administered without regard to race, color, national origin, religion, sex, sexual orientation, disability, age, or on the basis of membership as set forth in USERRA, or on any other basis which is proscribed by law, except where gender, religion, national origin, or age is a bona fide occupational requirement.

Pima County Community College District will assure full participation of all persons contracting or providing services to the College.

The Board of Governors of Pima County Community College District has affirmed that the College is an equal educational/ employment opportunity institution. College discrimination policies apply to all students and to all educational programs, services, activities, and facilities, as well as to all employees and all terms and conditions of employment.

To inquire about filing a discrimination complaint, or for general information related to discrimination or Title IX issues, the College's discrimination/ sexual harassment complaint procedure, or the rights and protections afforded by the ADA, contact Terry Flores, Affirmative Action Officer, at the Pima Community College District Office, 4905C East Broadway Blvd., Tucson, AZ, 85709-1310, (520) 206-4539. Confidentiality will be practiced on a need-to-know basis.

### Harassment (Including Sexual Harassment) Policy Statement

Pima Community College District is committed to promoting and maintaining a productive work and educational environment free of discrimination and harassment. In keeping with this commitment, Pima County Community College District will not tolerate verbal or physical conduct by an employee or student that harasses, disrupts, or interferes with another's work performance or education or that creates an intimidating, offensive or hostile work or educational environment.

Employees and students are expected to maintain a productive work and educational environment that is free from harassing or disruptive activity. No form of unlawful harassment will be tolerated, including unlawful harassment for the following reasons: race, national origin, religion, disability, pregnancy, age, military status or sex. Special attention should be paid to the prohibition of sexual harassment, which includes harassment by members of the same or opposite sex.

Each administrator, faculty member and supervisor has a responsibility to keep the workplace free of any form of unlawful harassment, and in particular, sexual harassment. No supervisor is to threaten or insinuate, either explicitly or implicitly, that an employee's refusal or

willingness to submit to sexual advances will affect the employee's terms or conditions of employment.

Similarly, each administrator and faculty member has a responsibility to keep the campus and classroom free of any form of unlawful harassment, and in particular, sexual harassment. No faculty member or administrator is to threaten or insinuate, either explicitly or implicitly, that a student's refusal or willingness to submit to sexual advances will affect the student's status, including grades.

Other unlawful discrimination, including sexual harassment, whether committed by administrators, faculty, supervisors, non-supervisory employees, students or non-employees, is also prohibited. Such conduct includes, but is not limited to:

- A. Unwanted physical contact or conduct of any kind, including sexual flirtations, touching, advances or propositions;
- B. Verbal harassment of a sexual nature, such as lewd comments, sexual jokes or references, and offensive personal references;
- C. Jokes of a sexual nature;
- D. Demeaning, insulting, intimidating or sexually suggestive comments about an individual's dress or body;
- E. The display in the workplace of demeaning, insulting, intimidating or sexually suggestive objects or pictures, including nude photographs;
- F. Demeaning, insulting, intimidating or sexually suggestive written, recorded, or electronically transmitted messages.

Any of the above conduct, or other offensive conduct, directed at individuals because of their race, national origin, religion, disability, pregnancy, age or military status is also prohibited.

Matters with a sexual connotation or sexual content which occur in legitimate educational curricula or endeavors do not violate this policy unless used excessively or improperly. Although it is not possible to list every act or matter described which can violate this policy, examples include but are not limited to the following:

- A. Repeated focus on topics of a sexual nature;
- B. Use of profanity outside of the subject matter being taught;
- C. Use of vulgarities;
- D. Humiliating, embarrassing or otherwise harassing any individual or group of individuals.

Any member of the College community, especially administrators and supervisors, who believes that the actions or words of any other member of the College community constitute unlawful harassment has a responsibility to report the complaint as soon as possible. Issues of unlawful harassment covered by EEO laws should be directed to the Affirmative Action office. All other forms of harassment should be directed to the Human Resources Employee Relations office.

All complaints of harassment will be investigated in as prompt, impartial and confidential a manner as possible under the ADA and Equal Opportunity/Discrimination Complaint Procedure or under the appropriate College personnel or student handbooks. All members of the College community are required to cooperate in any investigation. Both the charging party and the respondent will be given the opportunity to present their side of the incident.

Any employee or student who is found to have violated this harassment policy will be subject to appropriate disciplinary action, depending on the circumstances, up to and including termination for employees or expulsion for students.

Disciplinary action will be taken against any individual who files a false discrimination or harassment complaint and against any individual who provides false testimony during investigations.



Employees are required, as a condition of employment, to cooperate with the College's investigation of harassment complaints.

Retaliation against any member of the College community for filing an internal or external complaint or participating in an investigation is strictly prohibited and will be grounds for disciplinary action up to and including termination for employees or expulsion for students.

The College administration is authorized to establish regulations and procedures to effect this policy.

### **Americans with Disabilities Act**

It is the policy of Pima County Community College District to comply with the Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973 as amended, as well as other applicable federal and state laws and regulations that prohibit discrimination on the basis of disability. No qualified person will, because of disability, be denied access to, participation in, or the benefits of any program, activity, or service offered by the College.

The College will make every effort to (1) ensure that qualified individuals with a disability are provided a reasonable accommodation, and (2) promote respect for the dignity and equal treatment of individuals with disabilities.

### **Equal Educational Opportunity Policy**

The Board of Governors affirms that the Pima County Community College District is an equal educational opportunity institution. In support of this commitment, the Board of Governors authorizes and directs the Chancellor to implement regulations and procedures to facilitate opportunity for equal access to, retention in, and completion of College educational programs.

## **Pima County Community College District Board of Governors**

Dr. Brenda B. Even  
Richard G. Fimbres  
Sherryn S. Marshall  
Scott A. Stewart  
Marty Cortez

### **Term Expires**

District 1, Dec. 2008  
District 2, Dec. 2010  
District 3, Dec. 2012  
District 4, Dec. 2010  
District 5, Dec. 2012

## **College District Administrators**

**Dr. Roy Flores, Chancellor**

**Charlotte A. Fugett, Executive Vice Chancellor for Administration**

**Dr. Suzanne L. Miles, Provost and Executive Vice Chancellor for Academic and Student Services**

**Dr. Louis Albert, President, West Campus**

**Dr. Johnson Bia, President, Downtown Campus**

**Jana B. Kooi, President, Community Campus**

**Dr. Sylvia M. Lee, President, Northwest Campus**

**Dr. Raul Ramirez, President, East Campus**

**Dr. Mary Vanis, Interim President, Desert Vista Campus**

**Dr. David W. Bea, Vice Chancellor for Finance**

**Kirk R. Kelly, Vice Chancellor for Information Technology**

## **District Office**

### **Office of the Chancellor**

**Dr. Roy Flores, Chancellor**

B.S., M.S. Indiana State University; Ph.D. Iowa State University

**Senior Assistant to the Chancellor, Vacant**

### **Office of the Provost and Executive Vice Chancellor for Academic and Student Services**

**Dr. Suzanne L. Miles, Provost and Executive Vice Chancellor for Academic and Student Services**

B.S. Northwestern University; M.A. Arizona State University; Ph.D. University of Arizona

**Imelda V. Cuyugan, Assistant Vice Chancellor for External Relations**

B.A. Divine World University of Tacloban; M.P.A. California State University Northridge

**Dr. Shirley Y. Jennings, Assistant Vice Chancellor for Student Services**

B.A. Central State University; M.Ed. Howard University; Ph.D. University of Maryland at College Park

**David W. Padgett, Assistant Vice Chancellor for Academic Services**

B.S., M.B.A. Mississippi State University

**Lynne Wakefield, Assistant Vice Chancellor for Marketing**

B.S. Arizona State University

**Philanne Y. Burke, Executive Director, Alumni Association**

B.A. University of Kansas; M.A. University of Arizona

**Cheryl M. House, Executive Director, Pima Community College Foundation**

B.S., Bowling Green State University

**David R. Irwin, Executive Director for Public Information**

B.A. Ohio State University; M.B.A. Arizona State University

**Anna M. Reese, Executive Director of Financial Aid**

B.A., M.P.A. Fairleigh Dickinson University

**Dr. Robert Riza, Executive Director of Athletics**

A.A. Weatherford College; B.S. Texas Wesleyan University; M.S. Texas A&M University; Ed.D. Texas A&M University

**Dr. Heather Tilson, Executive Director for Planning and Institutional Research**

B.S., B.A. East Carolina University; M.B.A. West Chester University; Ph.D. Drexel University

**Stan Steinman, Senior Assistant to the Provost and Executive Vice Chancellor**

B.A. University of Arizona; M.P.A. George Washington University



## District Office (continued)

### Office of the Executive Vice Chancellor for Administration

**Charlotte A. Fugett, Executive Vice Chancellor for Administration**  
B.S. Longwood College; M.B.A. University of Richmond

**Jack Redavid, Assistant Vice Chancellor for Human Resources**  
B.A. University of Arizona

**Bill Ward, Assistant Vice Chancellor for Facilities**  
B.S. Indiana State University

### Office of the Vice Chancellor for Finance

**Dr. David W. Bea, Vice Chancellor for Finance**  
B.A. Colgate University; M.A., Ph.D. Claremont Graduate University

**Diane Groover, Assistant Vice Chancellor for Finance**  
B.S. University of Arizona; B.S. University of Phoenix; M.B.A. University of Arizona

### Office of the Vice Chancellor for Information Technology

**Kirk R. Kelly, Vice Chancellor for Information Technology**  
B.S. Washington State University; M.I.S. University of Phoenix

**Assistant Vice Chancellor for Information Technology, Vacant**

## Community Campus

**Jana B. Kooi, Campus President**  
B.A. Calvin College; M.A. Western Michigan University

**James E. Johnson, Dean of Instruction**  
B.B.A. Marshall University; M.B.A. Murray State University

**Jerry L. Haynes, Dean of Student Development**  
B.S. Bowling Green University; M.Ed. Miami University

**Gregory N. Hart, Dean of Pima Community College Adult Education**  
B.A., M.Ed. University of Arizona

**Nancy Russell, Dean of Workforce and Business Development**  
B.S. Michigan State University; M.B.A., M.Ed. Texas A&M University

**Cynthia D. McCafferty, Division Dean of Instruction**  
A.A. Bronx Community College; B.S. State University of New York; M.Ed. Northern Arizona University

**Dr. Cynthia M. Meier, Division Dean of Pima Community College Adult Education**  
B.S., M.A. Eastern Michigan; Ph.D. University of Arizona

## Desert Vista Campus

**Dr. Mary Vanis, Interim Campus President**  
B.A., M.A. Adams State College; Ed.D. University of Northern Colorado

**Dr. John R. Madden, Dean of Instruction**  
B.A., M.A. Western Michigan University; Ed.D. University at Albany

**Leticia Menchaca, Dean of Student Development**  
B.S., M.Ed. University of Phoenix

**Simone Gers, Acting Division of Instruction—Occupational Programs**  
B.A., M.A. University of Houston-Clear Lake

**Elizabeth E. Wheeler, Division Dean of Instruction**  
B.A., M.A. University of Texas-El Paso

## Downtown Campus

**Dr. Johnson Bia, Campus President**  
B.S., M.S. University of Arizona; Ph.D. Iowa State University

**Dr. Harry Muir, Dean of Instruction**  
B.S., M.S. University of Kansas; Ph.D. Kansas State University

**Dr. Anne M. Vosberg, Acting Dean of Student Development**  
B.A. Smith College; M.Ed. University of Arizona; Ed.D. Northern Arizona University

**Terry T. Forster, Division Dean of Instruction—Industrial and Technical Education**  
A.A., A.A.S. Pima Community College

**Dr. John J. Merren, Division Dean of Instruction—Business and Liberal Arts**  
B.S., B.A., M.A. Lamar University; M.Ed., Ph.D. University of Arizona

**Dr. Daniel Wright, Division Dean of Instruction—Science and Communication Arts**  
B.A. West Virginia University; M.B.A. Pace University; M.S., Ph.D. University of Maryland

**Division Dean of Student Support Services, Vacant**



## East Campus

### **Dr. Raul Ramirez, Campus President**

B.A., M.S. The University of Texas-El Paso;  
Ed.D. New Mexico State University

### **Dr. Mary Ann Martinez Sanchez, Dean of Instruction**

B.A. Duke University; M.A., Ph.D. University of Notre Dame

### **Dr. Shelley J. Fortin, Dean of Student Development**

B.A. Stonehill College; M.A. American International College; Ed.D.  
University of Massachusetts-Boston

### **Ricardo Castro-Salazar, Division Dean of Instruction—General Education, Social Sciences and Developmental Education**

B.S.B.A. Instituto Tecnológico de Sonora; M.A. University of Arizona,  
M.A. University of Amsterdam; M.Ed. Universidad La Salle-Mexico City

### **Dr. Ann Christensen, Division Dean of Student Support Services**

B.Sc., M.Sc. Concordia University; Ph.D. Queen's University at Kingston

### **Thomas Tomasky, Division Dean of Instruction—Business, Language, Sciences and Health Related Technology**

B.S. Millersville University; M.V.E. Northern Arizona University

## Northwest Campus

### **Dr. Sylvia M. Lee, Campus President**

B.A., M.Ed. University of Arizona; Ph.D. Arizona State University

### **Brigid Murphy, Dean of Instruction**

B.A. Montana State University; M.A. University of Texas

### **Dr. Lorraine Morales, Dean of Student Development**

B.S. Western New Mexico University; M.A. University of Arizona; Ed.D.  
Northern Arizona University

### **Patricia Houston, Acting Division Dean of Instruction—Humanities, Social and Behavioral Sciences**

A.B. Syracuse University; M.A. Universidad de las Americas

### **Ted A. Roush, Division Dean of Instruction—Science, Mathematics and Professions**

B.S. United States Air Force Academy; M.S. Boston University

## West Campus

### **Dr. Louis Albert, Campus President**

B.S. Loyola College of Maryland; M.S. University of Maryland;  
Doctor of Humane Letters Cuttington University College;  
Ph.D. University of Maryland

### **Victoria H. Cook, Dean of Instruction**

B.A., M.A. University of Arizona

### **Nancee J. Sorenson, Dean of Student Development**

B.S., M.S. Indiana State University

### **Mary E. Elasowich, Division Dean of Student Support Services**

B.A. University of Massachusetts; M.A. Assumption College

### **Dr. Mary Kay Gilliland, Division Dean of Instruction—Science, Mathematics, Engineering, and Technology**

B.A. Bryn Mawr College; Ph.D. University of California San Diego

### **Dr. Mary Beth Ginter, Division Dean of Instruction—Business, Computers, Languages, & Social Sciences**

B.S. Oakland University; M.A. Eastern Michigan University;  
Ph.D. University of Arizona

### **Division Dean of Instruction—Nursing, Vacant**

### **Dr. Darla Lammers, Acting Division Dean of Instruction—Communications, Humanities, and Visual and Performing Arts**

B.A.Ed., J.D. University of Arizona

### **John E. Gillis, Acting Division Dean of Instruction—Health Related Professions, and Fitness and Sport Sciences**

B.S. Minnesota State University; M.A. University of Minnesota

## Emeritus Status

The Board of Governors confers Emeritus status on distinguished individuals, retired from the College, to signify honor and respect for outstanding accomplishments and contributions to the College over many years. This distinction is a tribute to the special relationship that will extend well into the future as the College periodically calls upon the services of these highly regarded colleagues for the benefit of the College community. Faculty and administrators receiving such an award exemplify the characteristics of ideal community college educators who, through their professional careers at Pima Community College, have contributed significantly to disciplines or services, professional organizations, their campuses, the Central Office, the College district, and the Pima community.

James E. Gibson, Ed.D., Provost Emeritus 1991

Edward M. Duperret, M.Ed., Faculty Emeritus 1992

Leland H. Scott, Ph.D., Faculty Emeritus 1992

Henry "Hank" Oyama, M.Ed., Vice President Emeritus 1992

Robert Longoni, M.A., Faculty Emeritus 1993

Jamie Trainer, M.S., Faculty Emerita 1993

Constance Howard, M.S., Dean Emerita 1993

Johnas F. Hockaday, Ph.D., Chancellor Emeritus 1995

Max Jules Gottschalk, B.A., Faculty Emeritus 1999

Robert D. Jensen, Ed.D., Chancellor Emeritus 2003

Angela Zerdavis, Ed.D., President and Faculty Emerita 2004

Miquel A. Palacios, Ph.D., President Emeritus 2004

Philip J. Silvers, Ph.D., Assistant Vice Chancellor Emeritus 2004

Arthur Alberding, Ph.D., Faculty Emeritus 2005

## Distinguished Staff Status

The Board of Governors confers Distinguished status on retired College staff to signify honor and respect for outstanding accomplishments and contributions to the College over many years. Staff members receiving such an award exemplify the characteristics of the ideal community college. Through their professional careers at Pima Community College, these distinguished individuals have contributed significantly to their areas of service, professional organizations, their campuses, the Central Office, the College district, and the community.

Emily McMillin, 1996

Harold Thompson, 1996



## Pima Community College Faculty

### Alice L. Adamson, Mathematics (1992)

B.S. Maryville College; M.S. California State University-Hayward

### Darla J. Aguilar, Mathematics (1999)

B.S. Eastern Montana College; M.A. University of Arizona

### Richard Alvidrez, Technology Education, Electronics (2002)

A.A. El Camino College; B.A., M.A. California State University - Long Beach

### Carmen Amavizca, Writing (1999)

B.A., M.Ed., University of Arizona

### Emilia Andujo, Dental Hygiene Education (1991)

A.A. Rio Hondo Community College; A.S. Cerritos Community College; B.S. California State University-Long Beach; M.S. California State University-Los Angeles

### Dr. Cynthia A. Arem, Psychology (1975)

B.A. City University of New York-Brooklyn; M.S. City University of New York-City College; Ph.D. University of Arizona

### Barbara C. Armenta, Mathematics (1991)

A.S. Pima Community College; B.S. Indiana University of Pennsylvania; M.Ed. University of Arizona

### Antonio Arroyo, Librarian (1996)

A.A. Fullerton College; B.A. Whittier College; M.S. California State University-Fullerton

### Max R. Atwell, Dental Lab Technology (2002)

A.A.S. Pima Community College; B.S.Ed. Northern Arizona University

### Mark Backes, Machine Tool Technology (2004)

Certificates Rock Valley College, U.S. Department of Labor

### Gun E. Bailey, Speech (1973)

B.A., M.A. University of Arizona

### Dr. Robert K. Baker, Librarian (1997)

B.A. California State University-Northridge; M.A., M.L.S. University of California-Los Angeles; Ed.D. Northern Arizona University

### Pamela A. Barnes, Writing (1974)

A. B. Cedar Crest College; M.A. Seton Hall University; M.Ed. University of Arizona

### Stewart F. Barr, IV, Humanities and Philosophy (1986)

A.A., Pima Community College; B.A., Philosophy, M.A., Oriental Studies, University of Arizona

### Dr. Tori R. Basford, Computer Information Systems (1978)

B.S.E.E. University of Texas-Austin; M.S.E.E. New York University; Ph.D. Columbia University

### Charles Becker, Librarian (1999)

B.A. George Mason University; M.A. University of Arizona

### Robert P. Beitz, Psychology (1979)

A.S. Mercer County Community College; B.A., M.Ed., Ed.S. University of Arizona

### Sandra M. Bejarano, Biology (1993)

B.S. University of Arizona; M.Ed. Northern Arizona University

### Rebeca Bennett, Spanish (2002)

B.A. University of California; M.A. Middlebury College

### James Berger, Librarian (2003)

B.A., M.A. University of Iowa

### Michael Bezusko, Mathematics (2000)

B.S. Kentucky Wesleyan; M.Ed. Northern Arizona University

### Kenneth J. Bice, Welding (2005)

B.A. University of Arizona

### David R. Bishop, Philosophy (1997)

A.B., M.A. St. Louis University; M.A. Institute of Transpersonal Psychology; M.Div. Loyola University

### Dr. Cheryl K. Blake, Biology (2005)

A.B., Microbiology, M.A., Microbiology, Ph.D., Nutritional Science, Indiana University

### Donald C. Bock, Mathematics (2005)

B.S., Education, M.A., Education, University of Arizona

### Brooks M. Bradley, Respiratory Therapy (2006)

A.A.S. Pima Community College; B.A.S. Northern Arizona University

### Joseph M. Brewer, Librarian (2005)

B.A. University of Arizona; B.S. University of New Mexico; M.L.S. University of Arizona

### Dr. Aristeo Brito, Spanish (1970)

B.A. Sul Ross State College; M.A., Ph.D. University of Arizona

### Monica J. Brito, Spanish (1992)

A.B. St. Francis College; M.A. University of Arizona

### Dr. Richard L. Brodesky, Writing (1978)

A.B. Brandeis University; A.M., Ph.D. Harvard University

### Dr. Katherine L. Broneck, Business (2005)

B.A. University of Illinois; M.A., Ph.D., Management, University of Arizona

### Gigi D. Brown, Design (1990)

B.S. University of Arizona; M.Ed. Northern Arizona University

### Galen Brubaker, Building Technology (1997)

A.S. Community College of the Air Force; B.S. Wayland Baptist University; M.S. Troy State University

### Kelly F. Brumbaugh, Automotive Technology (1992)

A.A.S. Pima Community College; B.S.Ed. Northern Arizona University; M.A. Chapman University

### Margaret Buck-Rodriguez, Reading (2003)

B.S. Lesley University; M.A. University of Arizona

### Ellyn E. Bulikowski, Nursing (1991)

B.S.N. University of Massachusetts; M.N. Emory University

### Dr. Lonnie D. Burke, Chemistry (2006)

A.A. Orange Coast College; B.S., Ph.D. University of California, Irvine

### Margo J. Burwell, Communications Graphics (2000)

B.A., M.F.A. University of Arizona

### Nicholas C. Busch, Biology (1969)

A.B., Biology, Sonoma State College

### Ellen F. Caldwell, Mathematics (1983)

A.B. Randolph Macon Women's College; M.S. University of Wyoming

### Dr. Teresa Isabelle Daza Campbell, Business (1998)

B.S.B.A., M.S., Ph.D. University of Arizona

### Richard Canole, Fitness & Sports Science (2002)

B.S. Saginaw Valley State University; M.S. Michigan State University

### Garry L. Carpenter, Mathematics (2004)

B.S. Pacific Union College; M.S. Oregon State University

### Dr. Olga Carranza, Psychology (2006)

A.A. San Bernardino Valley College; B.A. University of California, Riverside; M.A. California State University, San Bernardino; Ph.D. University of California, Santa Barbara

### Mariana Carreras, Art History/Art (2004)

A.A. Miami-Dade Community College; B.A., M.F.A. George Washington University

### Dr. Jefferson M. Carter, Writing (1977)

B.A. Pomona College; M.A., Ph.D. University of Arizona

### P. Michael Carter, Educational Support Faculty (1977)

B.A. University of Arizona; R.T. Tucson Medical Center Respiratory Therapy; M.Ed. Northern Arizona University

### Roberta L. Casper, Mathematics (1999)

A.S. Pima Community College; B.S., B.S., M.Ed. University of Arizona

### Guadalupe Castillo, History (1991)

B.A.Ed., M.A. University of Arizona

### Sandra J. Chan, Librarian (1982)

A.A. Pima Community College; B.A., M.L.S. University of Arizona

### Gustavo A. Chavez, Counselor (1982)

A.A. Mesa Community College; B.A.Ed., M.A.Ed. Arizona State University

### Dr. Kenneth R. Chiaro, History (1975)

B.A., M.A., Ph.D. University of Arizona

### Dr. Nancy G. Christie, Psychology (1993)

B.A., M.S., Ph.D. University of Arizona

### Carol Christofferson, Music (2006)

B.M., M.M. University of Arizona

### Juishin Chu, Nursing (2005)

B.S.N. Chung-Shan Medical & Dental College; M.S. University of Arizona

### Bruce C. Clark, Art (1990)

B.F.A. University of Georgia; M.F.A. University of Arizona

### Gary Clouser, Nursing (2002)

A.D.N. Western New Mexico University; B.A. University of Virginia; M.S.N. University of New Mexico

### J. Scott Collins, Mathematics (1994)

B.S., M.S. Virginia Polytechnic Institute

### Eric Comport, Librarian (2003)

B.A., M.A. University of Arizona

### Dr. Al L. Cooper, Spanish (1994)

A.A. Bakersfield College; B.A. University of Nevada; M.A., Ph.D. University of Arizona

### Dr. Karen S. Corbett, Nursing (2001)

B.S.N. University of Wisconsin-Milwaukee; M.S.N. University of Wisconsin-Madison; Ph.D. University of Texas at Austin

### Nina M. Corson, Mathematics (2005)

B.S. Stephen F. Austin State University; M.A. University of Arizona

### Barbara Cortes, Counselor (2002)

B.S.Ed. Northern Arizona University; M.A. Chapman University

### Dr. Mayra E. Cortes-Torres, Spanish (2006)

B.A. University of Wisconsin; M.A. Arizona State University; Ph.D. University of New Mexico

### Ronald D. Crabtree, Humanities (1999)

A.B., M.A. Washington University

### Dr. Amy Cramer, Business and Economics (2002)

B.A., M.A., Ph.D. University of Massachusetts

### Guadalupe A. Cruikshank, Spanish (2001)

B.A., M.A. University of Arizona

### Kathleen Fockler Curley, Librarian (1991)

B.A., M.A., M.L.S. University of Arizona

### Dr. John P. Dailey, Hospitality (1992)

B.S. Bryant College; M.A. University of Phoenix; D.Ed. Northern Arizona University

### Dr. James De La Rosa, Biology (1994)

B.S. University of Southern California; M.S., Ph.D. Cornell University

### Susan Jo Deering, Nursing (1985)

B.S.N. Lake Superior State College; M.S. University of Arizona

**James DeLaune, Computer Information Systems (2002)**

B.S., M.B.A. University of Florida

**Francisco O. Delgado-Duran, Biology (1990)**

B.S. University of Chihuahua; M.S. University of Arizona

**Mic R. Denfeld, Writing (1992)**

A.A. Southeast Iowa Area Community College; B.A. Iowa Wesleyan College; M.A. Western Illinois University; M.A. Iowa State University

**Dr. Daniel A. DeNoon, Jr., Veterinary Technology (2001)**

B.S. Kansas State University; M.P.H. University of Minnesota; D.V.M. Kansas State University

**Suzanne Desjardin, Counselor (2003)**

A.A. Pima Community College; B.A. University of Arizona; M.C. University of Phoenix

**Randall D. Dings, Radiologic Technology (1998)**

A.A.S., B.S. Indiana University

**Dr. Susan Dobyns, Anthropology/Sociology (2002)**

B.S. University of Minnesota; M.A., Ph.D. University of Arizona

**Shelly Dorsey, Writing (2002)**

B.A., M.A. University of Arizona; M.A. University of Canterbury at Kent

**Allan E. Doyle, Accounting and Business (1977)**

B.A. Johns Hopkins University; M.B.A. New York University; M.A. University of Arizona; C.P.A. Certified Public Accountant

**David Druml, Computer Information Systems (1998)**

A.A.S. Milwaukee Technical College; B.A. Milwaukee School of Engineering; M.S. University of Phoenix

**Kimliisa S. Duchicela, History (2004)**

A.A. San Diego City College; B.A., M.A. San Diego University

**Dr. Jody Lee Estrada Duek, Biology (2001)**

B.S. University of Houston; M.A.Ed. California State University at Northridge; Ph.D. University of California-Los Angeles

**Dr. Dolores Duran-Cerda, Spanish (2002)**

B.A. University of Iowa; M.A., Ph.D. University of Arizona

**Matthias K. Duwel, Art (2005)**

M.F.A., Hochschule der Kunst

**Roggie H. Edberg, Counselor (1989)**

B.A. Mills College; M.Ed. University of Arizona

**Erin S. Eichelberger, Sign Language (2006)**

B.S.Ed. University of Pennsylvania; M.A. University of Arizona

**Barbara E. Elgutaa, Counselor (2000)**

B.S. University of Wisconsin-Stevens Point; M.S. University of Wisconsin-Madison

**Dr. Michael S. Engs, Counselor (1977)**

B.A. College of William and Mary; M.Ed. University of Arizona; Ed.D. Northern Arizona University

**John J. Evans, Computer Information Systems (2000)**

B.S., Wayne State University

**Dr. Ronald J. Evans, Computer Information Systems (2001)**

B.S., M.S., M.S.E., Ph.D. Purdue University

**Janet C. Farler, Accounting (2004)**

B.S., M.A.C. Brigham Young University

**Christina B. Felty, Art (1997)**

B.F.A. Virginia Commonwealth University; M.A. University of Arizona

**Katherine I. Feuling, Chemistry (1990)**

B.S.Ed., M.A. Northern Arizona University

**Julia B. Fiello, Biology (1994)**

B.A. Oberlin College; M.A. University of Arizona

**Dr. Brad C. Fiero, Biology (1990)**

B.S. Colorado State University; M.S. Oregon State University; D.A. Idaho State University

**Patricia Figueroa, Spanish (2005)**

B.A. University of Arizona; M.A. New York University

**Margaret K. Files, Writing (1987)**

A.B., A.M. University of Illinois

**Georgianne R. Fimbres, Design (1971)**

B.S., M.Ed. University of Arizona

**Paul A. Flasch, Mathematics (1994)**

B.S. St. John's University; M.S. North Dakota State University

**Rita V. Flattley, Psychology (1991)**

A.A. Pima Community College; B.A., M.Ed. University of Arizona

**Andrea Foege, Writing (2003)**

B.A. Vassar College; M.A. New Mexico State University; M.F.A. Arizona State University

**Vicci L. Fox, Reading (1993)**

B.S.Ed. North Texas State University; M.Ed. University of Arizona

**Martha L. Frailey, Reading (1990)**

B.S. University of Dayton; M.Ed. University of Arizona

**Anne R. Franklin, Mathematics (1990)**

B.A. Goddard College; M.A. University of Arizona

**Melinda Franz, Counselor (1999)**

A.A. Pima Community College; B.A. University of Arizona; M.A. Chapman University

**Kathy Fraychineaud, Sign Language (2002)**

A.A.S. Rochester Institute of Technology; B.S.E.E.T. Northeastern University; M.A. University of Arizona

**Dr. Richard H. Fridena, Sociology (1981)**

B.A. University of Arizona; M.S.W. Arizona State University; Ph.D. University of Arizona

**Margaret M. Fried, Nursing (1982)**

B.S.N. College of St. Teresa; M.A. University of Washington

**Duff C. Galda, English as a Second Language (1997)**

A.A. Glendale Community College; B.S., M.Ed., M.Ed., M.Ed. Northern Arizona University

**Patricia A. Gardiner, Communications Graphics (2000)**

A.A.S. Pima Community College; B.F.A. University of Arizona

**Earl D. Garrick, Building & Construction Technology (2002)**

A.G.S. Central Arizona College; B.A. Prescott College; M.Ed. Grand Canyon University

**Christina G. Gastellum, Developmental Writing (2001)**

B.A., M.A. University of Arizona; M.B.A. University of Phoenix

**Simone Gers, Writing (1998)**

B.A., M.A. University of Houston-Clear Lake

**Donna H. Gifford, Astronomy (1999)**

B.A.Ed., M.S. University of Arizona

**James R. Goff, Physics (1971)**

A.B. Nebraska Wesleyan University; M.S. Case Institute of Technology

**Bonnie J. Golden, Counselor (1987)**

A.A. Southwest College; B.S. University of Illinois; M.Ed. University of Arizona

**Dr. Linda Gail Gonzales, Psychology (1999)**

B.A. Southwest Texas State University; M.A., Ph.D. University of Texas

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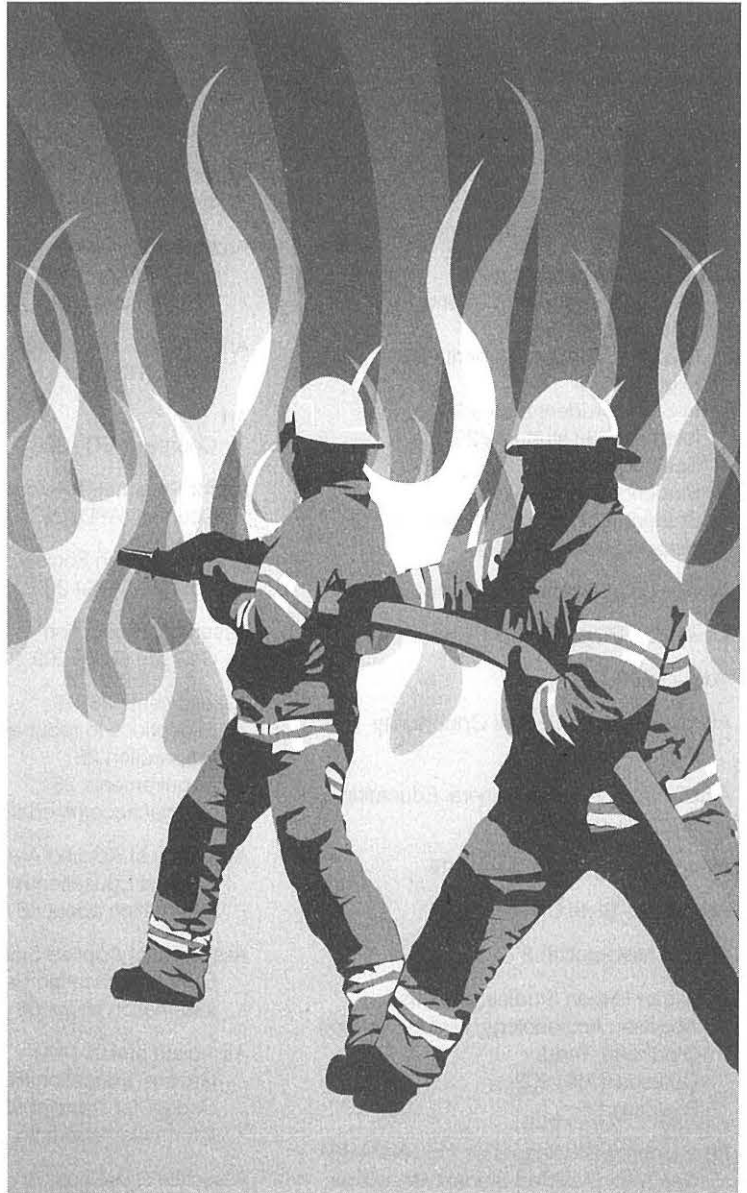
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## **Credits**

### **Production**

Creative Direction  
David Tang

Art Direction  
Shannon McBride-Olson

Book Design & Layout  
Shannon McBride-Olson

Cover Design, Illustration & Layout  
Jay Walsh

Photography  
David Tang  
Jay Walsh

Publication Coordination, Writing/Editing  
Geneva Escobedo

Publication Support  
Alma Burton  
Grace English  
Graciela Martinez Leon  
Heather Sim

### **Curriculum**

Curriculum Direction  
David Padgett  
Jennie Scott

Curriculum Coordination/Content Editor  
Danielle Beardsley  
Reinhard Pawlicki

Curriculum Production  
Tracey Armstrong  
Jenny Torres

### **Printing**

Von Hoffmann Graphics

