

Pima Community College

2013-2014

Catalog

People

Innovation

Quality

Diversity

Accountability

Integrity

→ TO DEVELOP  
OUR COMMUNITY  
THROUGH LEARNING



PimaCountyCommunityCollegeDistrict





# PimaCommunityCollegeCatalog 2013/2014

## 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 624 for more information.**

Reasonable accommodations, including materials in an alternative format, will be made for individuals with disabilities as soon as can be reasonably expected upon receiving proper notification. For the public, please contact the PCC information line at (520) 206-4500 (TTY 206-4530); for PCC students, contact the appropriate campus Disabled Student Resources office.

The PCC Department of Public Safety 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 or property owned or controlled by the Pima County Community College District; and on property within, or immediately adjacent to and accessible from, the campus. The report also includes institutional policies concerning campus security, such as policies concerning sexual assault, and other matters. You can obtain a copy of this report by contacting (520) 206-2671. The report can be found online at [www.pima.edu/dps/reports](http://www.pima.edu/dps/reports).

The Pima Community College Catalog and the semester Schedule of Classes are available as electronic documents published on the College website at [www.pima.edu](http://www.pima.edu).

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

Published: June 2013

### Pima County Community College District Board of Governors



District 1  
Dr. Brenda B. Even,  
*Chair*



District 2  
David Longoria,  
*Secretary*



District 3  
Dr. Sylvia Lee



District 4  
Scott A. Stewart



District 5  
Marty Cortez



**PimaCommunityCollege**

**(520) 206-4500**  
[www.pima.edu](http://www.pima.edu)



## Message from the Provost

Welcome to Pima Community College. PCC has a proud tradition of serving the community and helping students achieve their personal and professional goals.

The College offers a wide variety of learning opportunities. Whether you choose to attend PCC to transfer to a four-year college or university for a bachelor's degree, to improve your job skills, or to pursue an entirely new career, we can help you achieve your objective.

We also have a broad array of non-credit courses for the lifelong learner, including Continuing Education classes and Adult Education/ high school equivalency programs.

In addition to our campuses, the College offers instruction at more than 100 locations throughout Pima County. We strive to deliver education when our students want it: nights, weekends, in five- through eight-week "express" classes, in hybrid courses that mix classroom and Web-based instruction, and in other alternative formats. I believe that you will find academic choices to fit your needs and goals.

Pima Community College will be here as a partner to help you grow academically and professionally. By starting at Pima, you can go anywhere.

We are so pleased that you have chosen PCC!

A handwritten signature in black ink that reads "Jerry Migler". The signature is written in a cursive, flowing style.

Dr. Jerry Migler,  
Provost and Executive Vice Chancellor

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# Academic Calendar

## Fall Semester 2013

Fall early registration payment deadline	Aug. 9
Faculty advising begins	Aug. 21
All College In-Service Day (College closed until 1:30 p.m.)	Aug. 23
* <b>Fall classes begin</b> (for 16-week classes)	Aug. 28
‡ First 8-week session begins	Aug. 28
Add week (for 16-week classes)	Aug. 28-Sept. 4
Labor Day holiday (College closed)	Sept. 2
Drop/Refund/Audit deadline (for 16-week classes)	Sept. 9
Graduation Application deadline	Oct. 18
First 8-week session ends	Oct. 23
‡ Second 8-week session begins	Oct. 24
Student Withdrawal deadline (for 16-week classes)	Nov. 14
Veterans Day holiday (College closed)	Nov. 11
Thanksgiving holiday (College closed)	Nov. 28-Dec. 1
Final exam week	Dec. 14-20
<b>Fall classes end</b> (for 16-week classes)	Dec. 20
Second 8-week session ends	Dec. 19
Holiday break (College offices closed) (College closed at noon on Dec. 24)	Dec. 24-Jan. 1

## Winter Intersession 2013-14

‡ <b>Classes begin</b>	Dec. 23
<b>Classes end</b>	Jan. 10

## Spring Semester 2014

College offices open	Jan. 2
Spring early registration payment deadline	Jan. 10
Faculty advising begins	Jan. 14
All Faculty Day	Jan. 17
Martin Luther King Jr. holiday (College closed)	Jan. 20
* <b>Spring classes begin</b> (for 16-week classes)	Jan. 21
‡ First 8-week session begins	Jan. 21
Add week (for 16-week classes)	Jan. 21-28
Drop/Refund/Audit deadline (for 16-week classes)	Feb. 3
Graduation Application deadline	Feb. 19
** Rodeo holiday (College closed)	Feb. 20-21
First 8-week session ends	March 16
Spring break (no classes)	March 17-23
‡ Second 8-week session begins	March 24
Student Withdrawal deadline (for 16-week classes)	Apr. 10
Final exam week	May 14-20
Second 8-week session ends	May 19
<b>Spring classes end</b> (for 16-week classes)	May 20
Graduation	May 22

## Summer Sessions 2014

Summer Early registration payment deadline	May 16
Memorial Day holiday (College closed)	May 26
Graduation Application Deadline	June 27
Independence Day (College closed)	July 4

### Session A

Classes begin	May 27
Add deadline	May 28
Drop/Refund/Audit deadline	May 30
Student Withdrawal deadline	June 18
Classes end	June 30

### Session B

Classes begin	July 1
Add deadline	July 2
Drop/Refund/Audit deadline	July 7
Student Withdrawal deadline	July 24
Classes end	Aug. 6

### Session C

Classes begin	May 27
Add/Drop/Refund/Audit deadline	June 3
Student Withdrawal deadline	
• 8-week session	July 2
• 10-week session	July 14
Classes end	
• 8-week session	July 22
• 10-week session	Aug. 5

\* 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 2014 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 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 Student Services Center.

## Accreditation

Pima Community College (4905 E. Broadway Blvd., Tucson, AZ 85709, 520-206-4500) is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools; it has been placed on Probation. The Commission can be reached through their website ([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 also have 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, Early Childhood Education, Emergency Medical Technician, Health Information Technology, Machine Tool Technology, Medical Laboratory 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 Administration.

## College Vision

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

## College Values

We value:

- Accountability
- Diversity
- Innovation
- Integrity
- People
- Quality

## Mission Statement

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

## College Goals

1. To improve access to higher education.
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 create partnerships with business and industry, the local schools, government, and other sectors that enhance the community.
6. To provide effective developmental and adult basic education.
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 20,000 students annually.

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. 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 about 18,000 students annually.

In 1975 the College established the Community Campus to supplement traditional on-campus education. Currently, this campus offers classes at more than 115 sites throughout southern Arizona, and is the hub for distance learning. Pima Community College Adult Education, a part of Pima County since 1969, joined the College in 2000 and is headquartered at Community Campus. The Business and Workforce Development Office and Continuing Education 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 22,300 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 13,000 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 about 10,000 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 11,000 students. Major areas of study include the arts and sciences, preparation for health careers and hotel and restaurant management.

For many of its 43 years, Pima Community College has ranked among the largest multi-campus community colleges in the nation, and currently serves about 62,000 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 Navarrette	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	2003-2012
Dr. Suzanne Miles (interim)	2012-2013
Dr. Zelema Harris (interim)	2013
Dr. Lee D. Lambert	2013-present

## Pima County Community College District

### District Office

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

### Maintenance and Security

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

## Campuses

### Community Campus

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

### Desert Vista Campus

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

### Downtown Campus

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

### East Campus

8181 E. Irvington Road  
Tucson, AZ 85709-4000  
(520) 206-7000

### Northwest Campus

7600 N. Shannon Road  
Tucson, AZ 85709-7200  
(520) 206-2200

### West Campus

2202 W. Anklam Road  
Tucson, AZ 85709-0001  
(520) 206-6600

## Educational Centers and Offices

### Alumni Association

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

### Aviation Technology Center

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

### Center for the Arts

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

### Center for Learning Technology

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

### Center for Training and Development

(See Desert Vista Campus)  
5901 S. Calle Santa Cruz  
Tucson, AZ 85709-6365  
(520) 206-5100

### Continuing Education

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

### Davis-Monthan Air Force Base Education Center

5355 E. Granite St.,  
Building 2441, Suite 100  
Tucson, AZ 85707-3011  
(520) 206-4866

### PCC Adult Education Administrative Offices

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

### PCC Adult Education El Pueblo Liberty Learning Center

101 W. Irvington Road  
Building 7  
Tucson, AZ 85709-5640  
(520) 889-9962

### GED Testing

Community Campus,  
Desert Vista Campus,  
East Campus, Northwest Campus and  
Santa Rita High School  
(3951 S. Pantano Road,  
Tucson, AZ 85370)  
(520) 206-6433

### PCC Adult Education El Rio Learning Center

1390 W. Speedway Blvd.  
Tucson, AZ 85709-5630  
(520) 882-0940

### PCC Adult Education 29th Street Coalition Center

4355 E. Calle Aurora  
Tucson, AZ 85709-5000  
(520) 206-3550

### Pima Community College Foundation

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

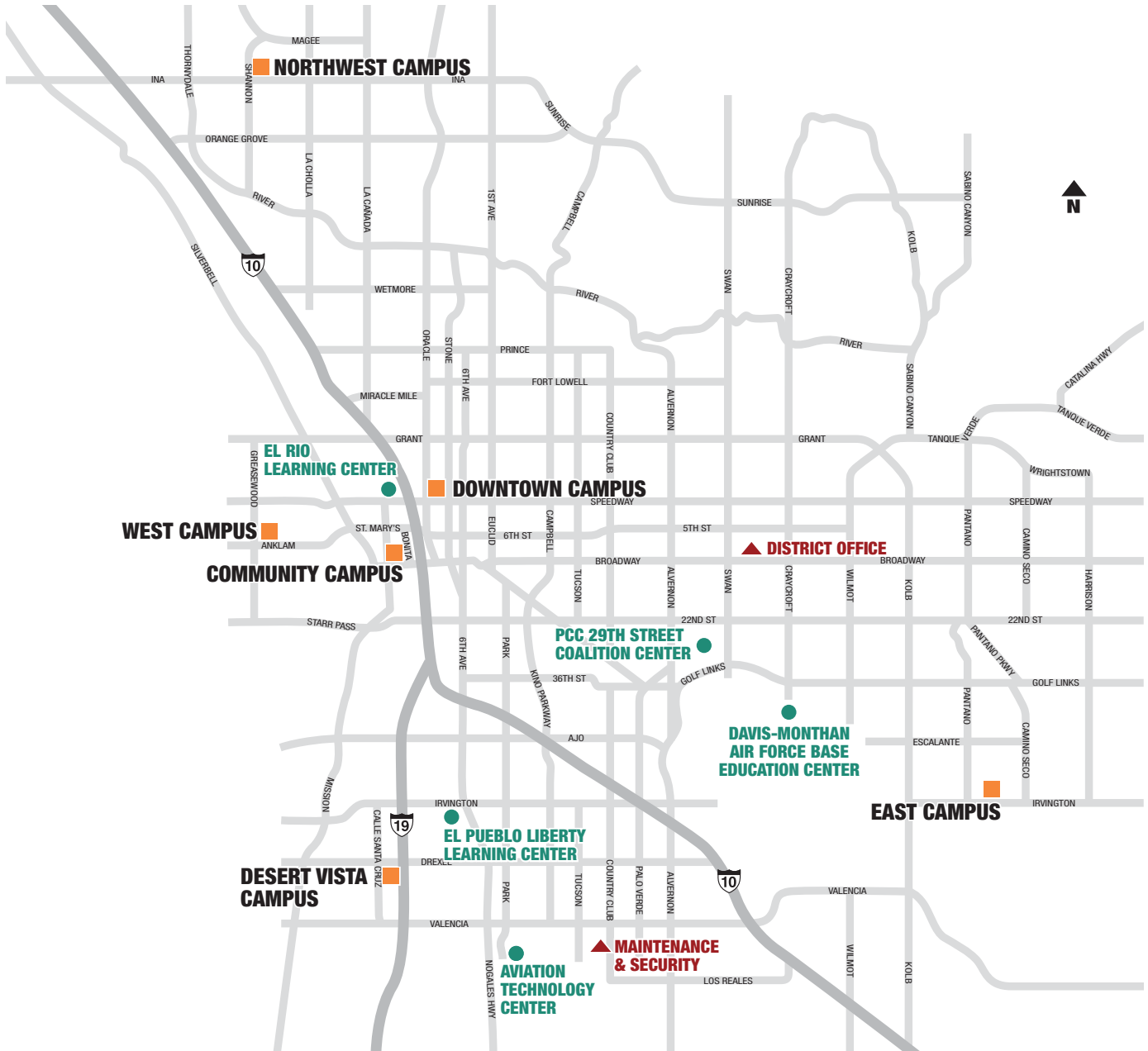
### Public Safety and Emergency Services Institute - 29th Street Coalition Center

4355 E. Calle Aurora  
Tucson, AZ 85709-5000  
(520) 206-6350

### Workforce and Business Development

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

# College Locations





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 more than 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 courses, and online advising and tutoring.

Community Campus is also home to vital community programs such as Pima Community College Adult Education (PCCAE). PCCAE provides free classes to adults seeking to obtain their Arizona High School Equivalency Diploma (GED) or those who seek to learn or improve their English. PCCAE also provides GED Testing and has programs targeting specific populations. These include the Family Literacy Program, Workplace Education Program, Refugee Education Program and Project RAISE. Continuing Education provides personal interest classes and activities for everyone, from pre-kindergarten children through senior citizens. The post degree Teacher Education Program provides required preparation and professional development for Arizona teachers.

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; AGEC 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 may include industry certifications ranging from A+ and Net+ to Cisco, and leadership or supervision.

Community Campus services include development and delivery of classes and programs in a variety of modes and locations in support of collegewide programs and initiatives. The Community Campus has been serving students since 1975, offering credit and noncredit classes at its campus location (401 N. Bonita Ave.) and at more than 100 facilities throughout southern Arizona, including Davis-Monthan Air Force Base. Community Campus is at the center of the College's education programs offered online.

The post-degree Teacher Education Program offers Arizona Department of Education (ADE) approved teacher preparation at the post baccalaureate level in: elementary, secondary and special education, as well as ADE endorsements in English as a Second Language, Middle Schools, and Structured English Immersion (SEI) for currently certified teachers; professional development courses for K-12 educators and administrators; an Associate of Arts degree in Elementary Education; and a basic certificate in Educational Technology.

Through its Workforce and Business Development (WBD) division, the College provides comprehensive, cost-effective training options for individual workers, as well as for businesses, organizations and governmental agencies. The WBD Contract Training department offers traditional or customized credit, non-credit or continuing education unit (CEU) courses to meet the needs of regional employers. These courses may be offered in person or online, at a location and at times convenient for the client. The Public Safety and Emergency Services Institute (PSESI) offers open enrollment courses, and also partners with public and private agencies, to provide degrees and certificates in law enforcement, fire science, corrections, juvenile corrections, crime scene management and emergency medical technology. The Arizona Prison Program contracts with appropriate federal and state agencies to provide occupational training programs for inmates. Finally, the WBD division works closely with Pima County to assist students in receiving Workforce Investment Act funding for classes.

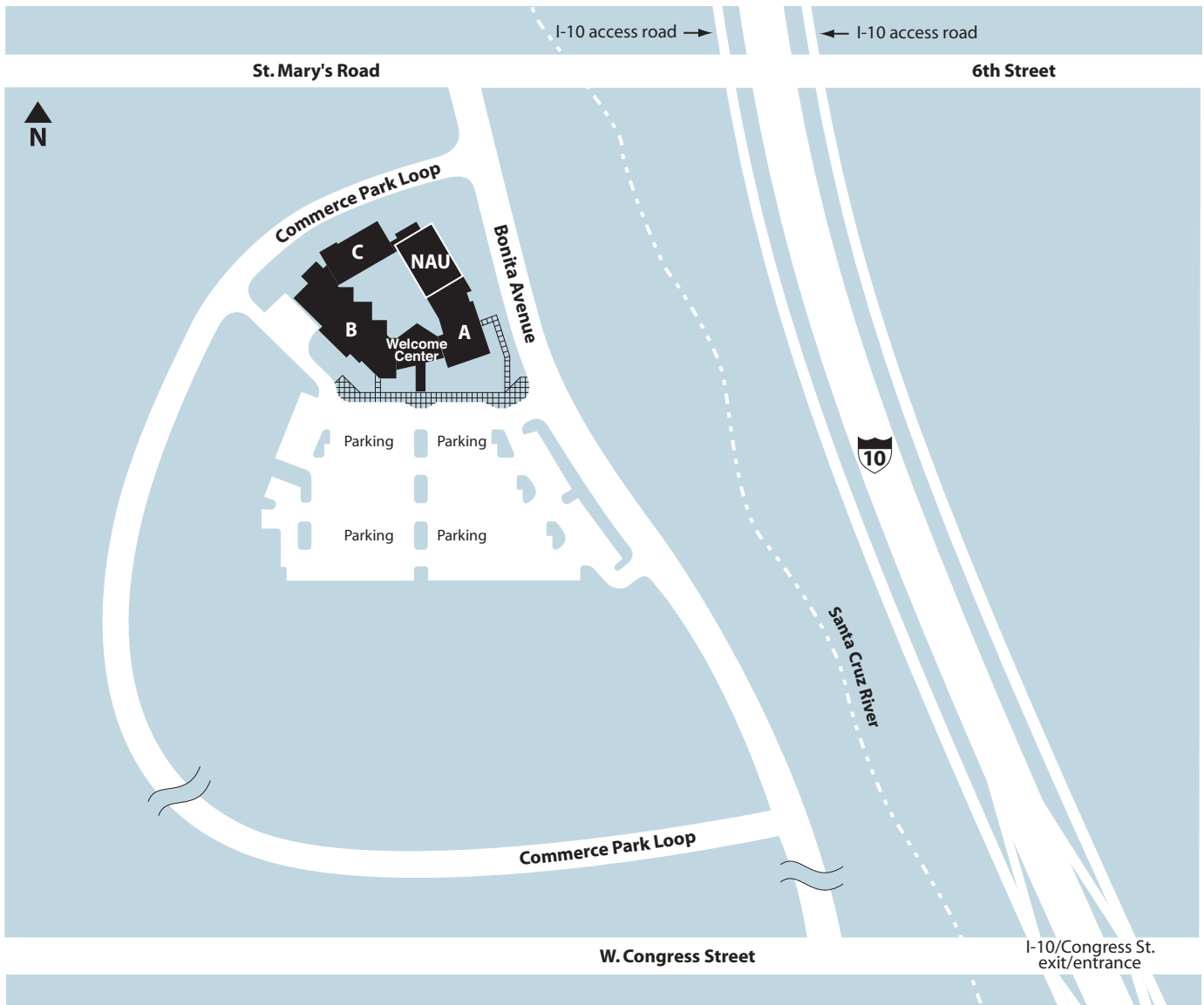
Pima Community College Adult Education, with sites throughout Pima County, coordinates adult basic education classes and services. PCCAE offers an array of programs, including GED preparation classes and testing, English Language Acquisition for Adults (ELAA), citizenship classes, College Transition opportunities, civics, and distance education programs for specific populations.

Continuing Education programs and services include noncredit general interest classes, programs for active adults, Motorcycle Rider Education, Pima for Kids summer classes for K-8 students, workshops and seminars.

The PCC Prep Academy is a noncredit supplement for students who demonstrate a need for additional learning in mathematics, reading and/or writing. The program provides instruction in four-week, 10-week or six-month increments at no cost to the student.

The Center for Learning Technology (CLT) houses the College's broadcast-quality video production facilities 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.



## Community Campus

### Area A:

- Center for Learning Technology
- Continuing Education
- Conference and Training Center
- High Tech Training Rooms
- Post Degree Teacher Education Program
- Workforce and Business Development

### Area B:

- Administration
- Administrative and Business Services
- Admissions and Registration
- Advising and Counseling
- Campus Resource Center
  - Assessments/Testing
  - Online Help Desk (520-206-6400)

### Area B:

- Career Counseling
- Cashier's Office
- Instructional Administration
- Pima Community College Prep Academy
- Receiving/Mailroom Services
- Student Development

### Area C:

- Center for Learning Technology
  - Telecommunications and Production Services
  - Telecourse and Interactive Classroom Distribution Center
  - Broadcast Studio
- Integrated Instructional Resource Center

### NAU

- Northern Arizona University Classrooms
- NAU Administrative Offices



## Desert Vista Campus

In 1986, Pima Community College opened Education Center South near the airport in response to requests from residents of the south and southwest areas of Tucson. In June 1993, the college established a new and comprehensive Desert Vista Campus near Interstate 19 and Drexel Road by relocating the Education Center South and Center for Training and Development (formerly Tucson Skill Center established in 1963).

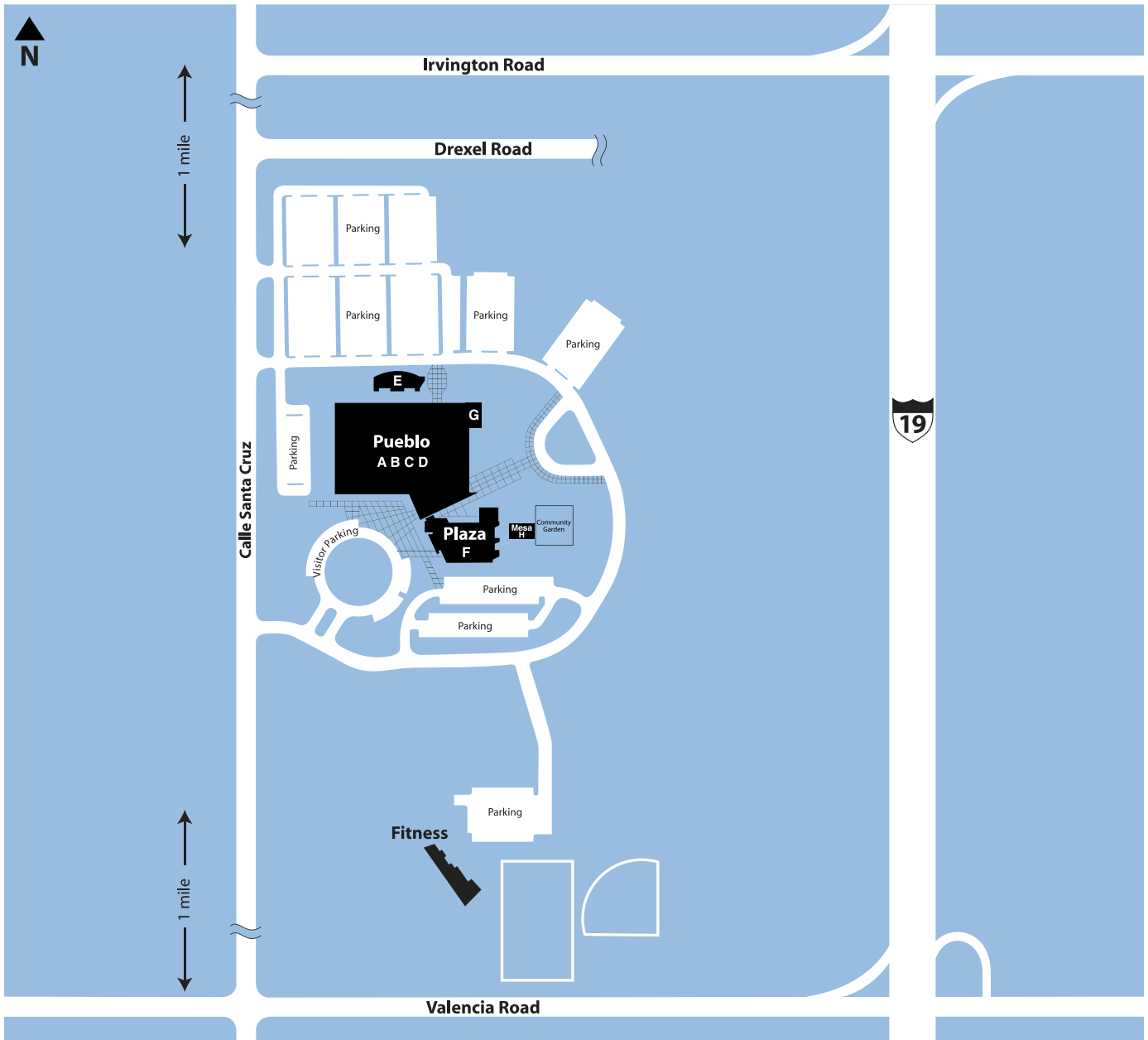
Desert Vista Campus offers a wide range of courses and programs, including university transfer, developmental, occupational, workforce and general education. A variety of courses are offered in mathematics, the sciences (biology, chemistry, astronomy and physics), languages (Spanish and English as a Second Language), and a rich cultural arts curriculum. 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 maintenance and structural repair and is one of only a few programs of its kind nationwide. In 2008, a new avionics building was added to the Aviation Technology Center, and students can pursue a certificate in avionics using state-of-the-art equipment. Signature programs also include Culinary Arts, Child Development Associate, and Early Childhood 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 (nursing, surgical technology, business education, medical assisting, food service). The CTD partners with community-based organizations, agencies, and employers to provide individualized year-round, open-entry/open-exit job training certificate programs for employment.

Services that support student success include a comprehensive Learning Center that integrates tutoring, Adult Education, the CTD Student Services Center, group and individual study areas, and a variety of workshops designed to help students reach their

educational goals. The campus also has a vibrant Student Life program and a Cyber Café in a central location where students can easily access websites and check email in a relaxed environment. In addition, the 5,000-square-foot Desert Vista library and computer commons serves students, faculty, college employees and the community with a welcoming atmosphere and versatile student space. Desert Vista is home to a Campus Garden, providing a learning environment for the culinary and science programs. The campus also provides bilingual services and a full range of student support services through the Student Services Center.

Vision High School, a charter school that mainstreams dually enrolled high school students into the community college environment, is housed at the campus. The campus administers Talent Search, Student Support Services and Upward Bound, three federally funded programs. Talent Search works with high school students to encourage and support their successful transition into post-secondary education. Upward Bound works with high school students to provide higher education opportunities and tracks the students during their first two years of college. The campus is part of a Pathways to Healthcare network and administers a Health Professions Opportunity Grant (HPOG) to provide health care training. Also at the campus is the Tohono O'odham Scholarship Office, which provides on-site counseling and advising to tribal students pursuing higher education.

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



## Desert Vista Campus

### Campus Garden

### Health Sciences Laboratory

Surgical Technology Lab  
Nursing Lab  
Health Sciences Simulation Lab

### Mesa Building

HPOG Offices  
Mesa Training Room

### Pueblo Building

Adjunct Faculty Offices  
Administrative Offices  
Bookstore  
Cafeteria  
Campus Police  
Center for Training and Development Programs  
Center for Training & Development Resource Lab

### Center for Training and Development

Student Services  
Classrooms  
Community Outreach  
Culinary Kitchens  
Faculty Offices  
Faculty Resource Center  
Laboratories  
Learning Center  
Student Life  
Student Support Services  
Talent Search  
Upward Bound  
Vision High School

### Plaza Building

Admissions/Registration  
Advising and Counseling  
Assessment/Testing Center  
Business Office

### Career and Transfer Center

Cashier  
Classrooms  
Computer Commons  
Disabled Student Resources  
Financial Aid  
Library  
Student Services  
Tohono O'odham Scholarship Office  
Welcome Center

### Fitness Building

Fitness Classrooms

### Aviation Technology Center

Aviation Classrooms/Laboratories  
Avionics Classrooms/Laboratories

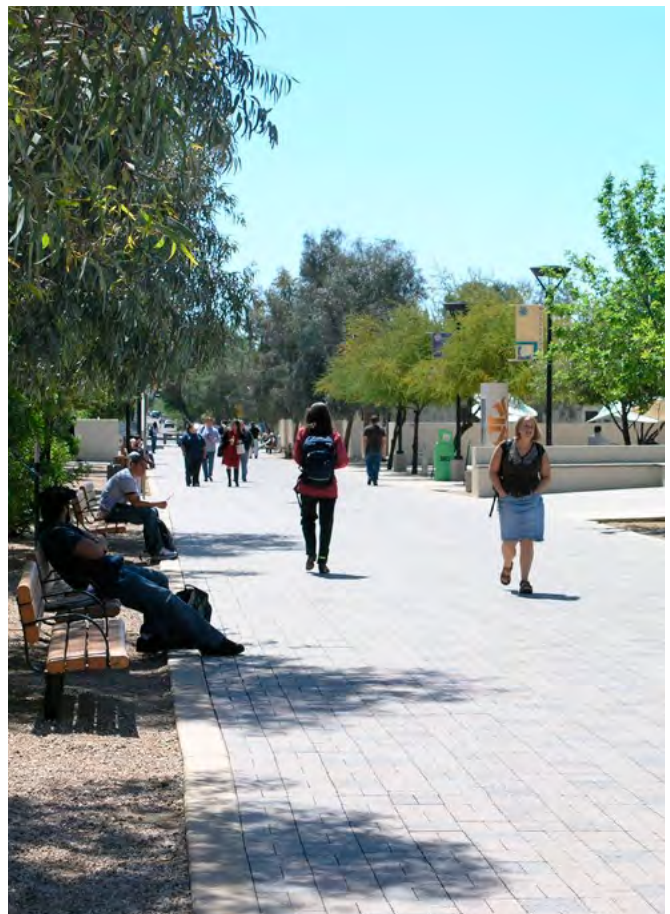


## Downtown Campus

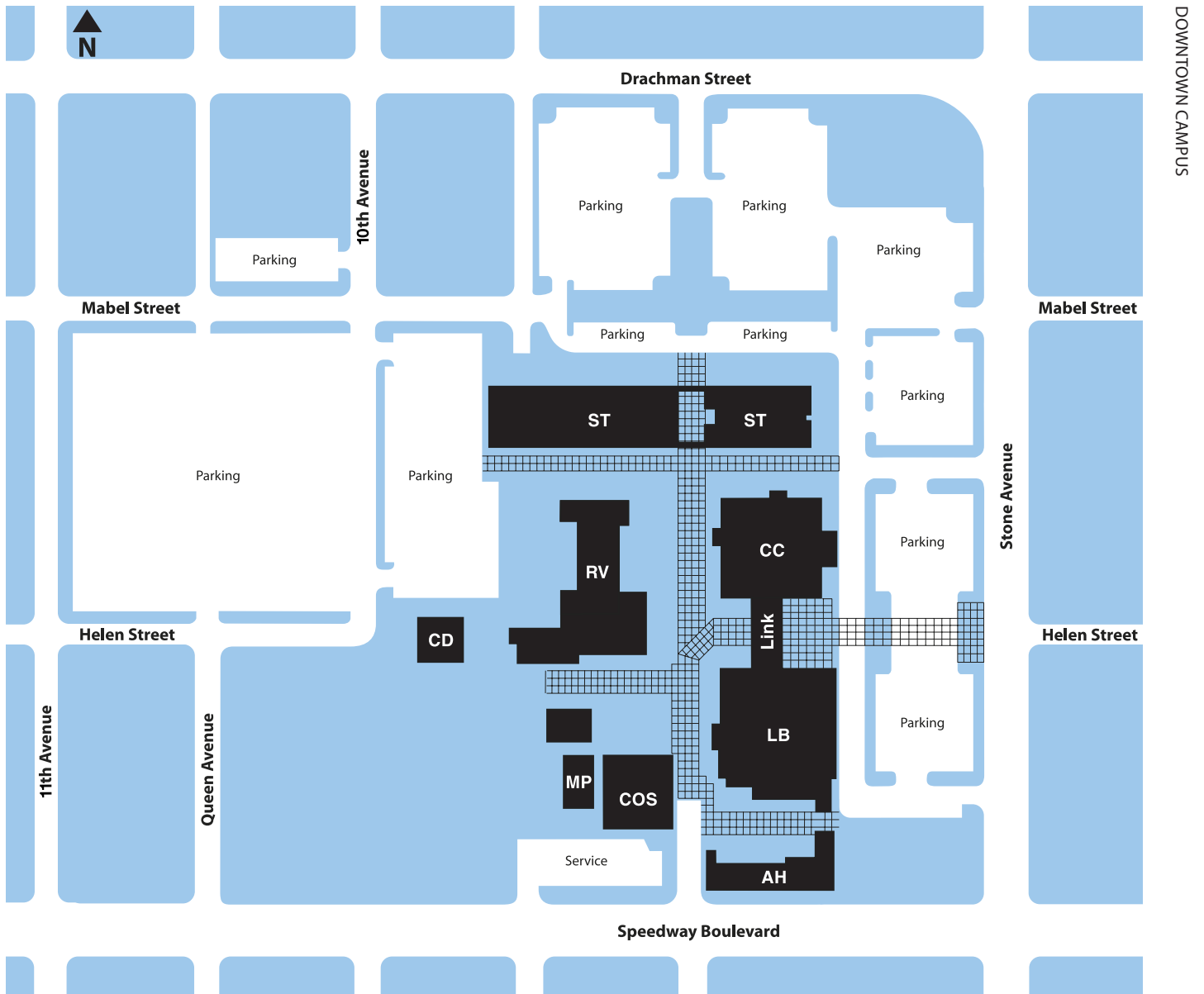
Since its beginning in 1974, the Downtown Campus has offered a variety of opportunities for students to enhance their personal, academic and professional lives. The Downtown Campus serves about 9,000 students during the fall and spring semesters. A balance of developmental, transfer and occupational course offerings has created an enrollment that is both heavily involved in university transfer (50 percent) and immersed in occupational programming leading directly to work (30 percent).

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 Writing Center offers self-paced learning. 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 Faculty Resource Center provides the latest technology for student learning and assists faculty who wish to incorporate computer learning into the classroom.

Every occupational discipline at the Downtown Campus works closely with local 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.







## Downtown Campus

### Classrooms

Arts and Humanities Building (AH)  
 Campus Center Building (CC)  
 Carpentry, Concrete and Solar (CD)  
 Library (LB)  
 Roosevelt Building (RV)  
 Science & Technology Building (ST)

**LB**  
 Student Life

### Offices

**COS**  
 Campus Business Services  
 Campus Police  
**CC/ LB/ ST /AH**  
 Faculty Offices  
**RV**  
 Administrative Offices  
**MP**  
 Maintenance/Physical Plant

### Student Services

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



## East Campus

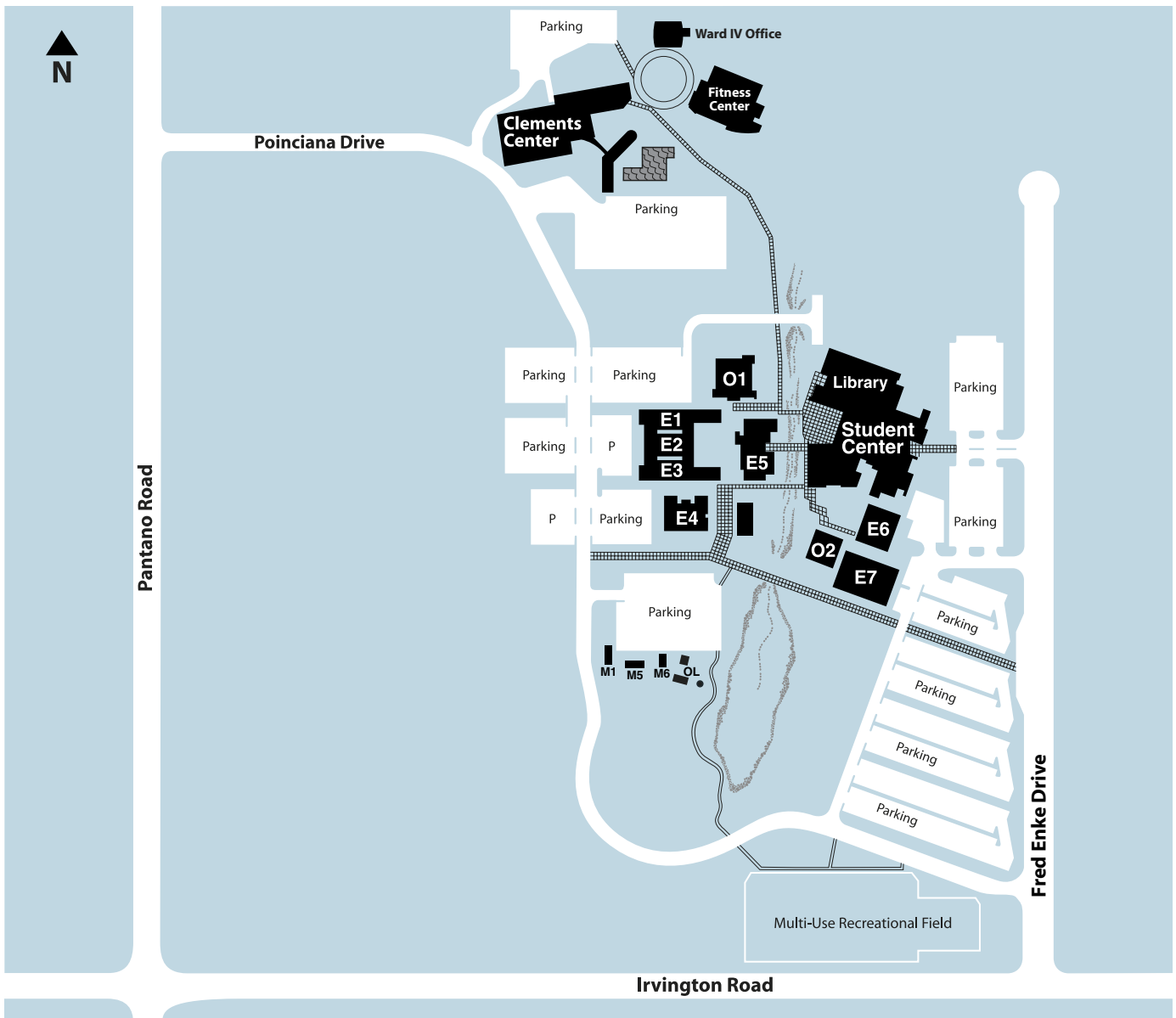
In 1980, Pima Community College expanded its educational facilities with the construction of the East Campus. Four subsequent expansions have now given the residents of Tucson's east side a comprehensive and convenient full-service campus that offers general education, university transfer, developmental coursework and selected occupational programming.

The campus enrolls more than 6,000 students a year. The campus houses a Health Clinic that is used by both the public as well as students. A dynamic Student Life office provides East Campus students with a wide variety of opportunities to enhance their personal success. Student Government is highly active, and student clubs are diverse and engaged in campus and community activities.

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, Logistics and Supply Chain Management, Veterinary Technology, and Administration of Justice. The College also has a partnership with University of Arizona South to offer classes.

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





## East Campus

### Buildings O1, O2

Administrative Offices  
Faculty Offices

### Buildings E-1, E-2, E-3, E-7

Classrooms  
Science Laboratories

### Building E-4

Classrooms  
Emergency Medical Technology EMT Lab  
UA South Offices

### Building E-5

Adjunct Faculty Service Center  
Art Gallery and Studios  
Audio/Visual & Faculty Resource Center  
Classrooms  
Mail Center

### Building E-6

Business Office  
Campus Police  
Classrooms  
Physical Plant  
Receiving  
Veterinary Technology Lab

### 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  
Assessment/Testing Center  
Bookstore  
Cafeteria  
Career Center  
Cashier  
Classrooms  
Community Room  
Computer Commons  
Counseling  
Disabled Student Resources  
Financial Aid & Veterans Services  
East Side Health Center  
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 northwest Tucson.

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 at the campus and online.

The heart of the campus includes student support services such as a comprehensive Student Services Center, Library, Tutoring and Campus Resource Center. Campus facilities also include classrooms; labs for biology, chemistry, astronomy, physics, geology and geography; an art gallery, 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.

The Northwest Campus is the only location that offers occupational programs in Therapeutic Massage, Clinical Research Coordinator, and Hotel and Restaurant Management. The Therapeutic Massage program offers both a certificate and an AAS which prepare students for state or national licensure. The Clinical Research Coordinator Program certificate or AAS prepares students to coordinate human subject clinical trials.

The Northwest Campus hosts a unique partnership between the College and Northern Arizona University. The Bachelor's Degree in Hotel and Restaurant Management on NAU may be completed at the Northwest Campus. The first two years of the program, the associate degree, is offered by the College and all of its credits transfer into the NAU program. The last two years of the degree is taught by NAU faculty on the Northwest Campus. A certificate for direct employment for those seeking an immediate, entry-level job in the hotel, resort and restaurant industry also is available.

In addition, the Northwest Campus continues to develop new programs, certificates and courses to meet current educational needs of students. The campus partners with the K-12 community, including offering a wide variety of dual enrollment options.

Through partnerships with the Northwest YMCA and Pima County Parks and Recreation, PCC allows students to take a full range of fitness, wellness and dance classes.

Construction has begun for a 49,000-square-foot building that will house state-of-the-art Science, Technologies, Engineering & Math (STEM)-related classrooms and labs, as well as general use classrooms and additional faculty space.



## Northwest Campus

### Building A

#### Level 1 (Boulevard)

Campus President  
Classrooms

#### Level 2 (Promenade)

Classrooms  
Community Room  
Therapeutic Massage Program  
Vice President for Instruction

#### Level 3

Adjunct Faculty Workroom  
Classrooms  
Conference room  
Faculty Offices  
Fine Arts Studio

### Building B

#### Level 1 (Boulevard)

Cashier  
Student Services Center  
(Admissions/ Registration/  
Counseling/Advising/  
Financial Aid/Career Center/  
Disabled Student Resources/  
Assessment & Testing)  
Vice President for Student  
Development

#### Level 2 (Promenade)

Administration & Business  
Services  
Assistive Technology  
Campus Resource Center  
Computer Commons  
Learning Center (Tutoring, Self-  
paced/Group Study Rooms)  
Upward Bound

#### Level 3

Library  
Sign Language Lab  
Technology Classroom  
Video Conference Room

### Building C

#### Level 2 (Promenade)

Canyon Café  
Classrooms

#### Level 3

Adjunct Faculty Workroom  
Conference Room  
Dean  
Faculty Offices

### Building D

#### Level 1 (Boulevard)

Classrooms

#### Level 2 (Promenade)

Bookstore  
Student Life  
Student Lounge  
Testing 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

### Building M

Faculty Offices

### YMCA Facilities

Classrooms  
Courts  
PCC Fitness & Sport Sciences  
Classes  
Pool

### Pima County Parks & Recreation Athletic Fields

## West Campus

The West Campus provides a full range of Nursing and Health-Related Professions programs that include an Associate Degree in Nursing, Dental Studies, Radiologic Technology, Respiratory Therapy and Medical Lab Technician. The Nursing and Respiratory Therapy programs have state-of-the-art classrooms and simulation labs. In fall 2011, the West Campus received a five-year U.S. Department of Education Title III HSI STEM (science, technology, engineering, mathematics) grant totaling \$4.3 million. The grant will strengthen STEM curriculum, modernize science laboratories, and increase the number of transfer students who pursue bachelor's degrees in STEM programs.

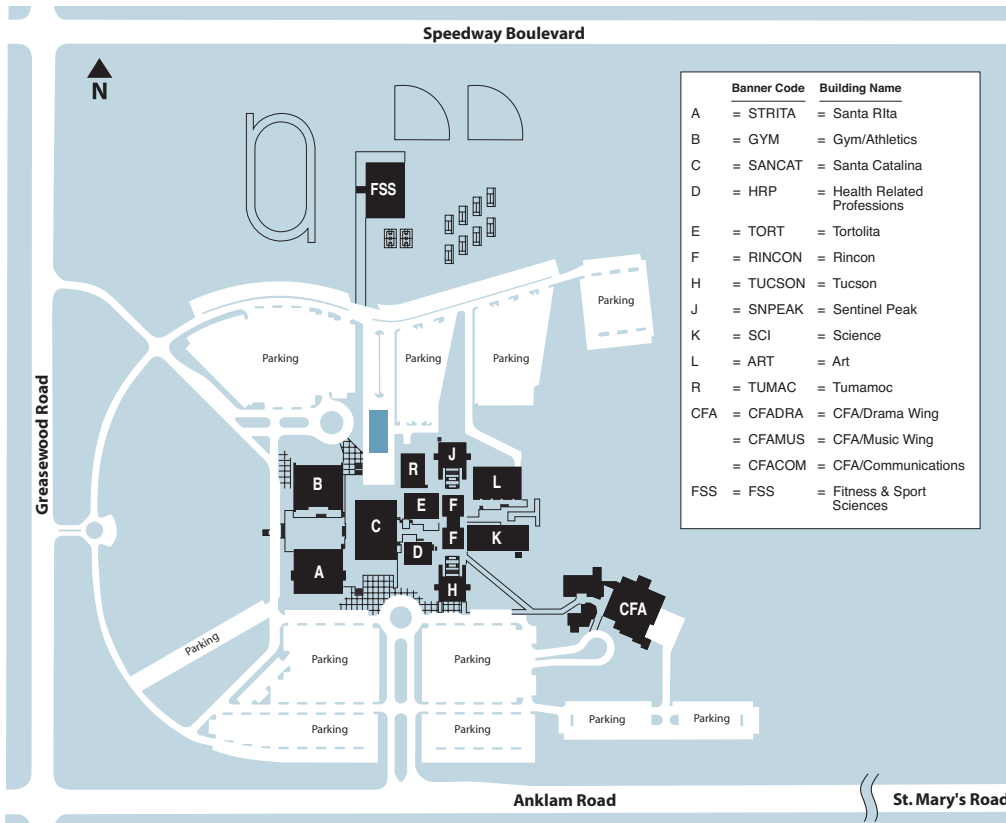
The West Campus also provides outstanding programs in Fashion Design, Journalism and the Visual and Performing Arts. The campus is known for its state-of-the-art Digital Arts program that offers cutting edge curriculum in computer animation, game design, digital design, illustration, film video, multi-media, photography and desktop publishing. Digital Arts program students have won numerous national Addy Awards through the American Advertising Federation national student advertising competition. In addition, the campus offers programs in business, computers, archaeology, sign language, interpreter training, social and behavioral sciences, as well as fitness and sport sciences. The campus also hosts the nationally known Creative Writing Weekend Workshops, offered in spring and fall.

The West Campus enrolls approximately 11,000 students each semester. The campus has 143 faculty members, 307 adjunct faculty and 97 staff. The campus is organized around four instructional divisions that offer a wide variety of associate degrees and certificate programs. West Campus is home to an Archaeology Center, Center for the Arts, and two art galleries, the Louis Carlos Bernal Gallery and the Student Gallery. The campus also provides a home to the College's International Student Services, Aztec Press student newspaper and the NJCAA-affiliated athletic department.

West Campus students have multiple opportunities to participate in co-curricular activities, including approximately 20 student clubs, student government and intercollegiate athletics.

Designed to blend with the surrounding desert, the campus features inner courtyards and several hiking trails on 267 acres. It comprises 13 buildings and 529,000 square feet of space that includes 154 classrooms and laboratories, a library, Academic Computing Commons and Learning Center.





## West Campus

### A (Santa Rita)

#### Ground Floor

Cafeteria  
Classroom  
Dance Room 1  
Dance Room 2  
Student Life & Student Government and Clubs  
West Side Health Center

#### First Floor

Classrooms  
Computer Classrooms & Labs  
Faculty Offices

#### Second Floor

Administrative Services  
Campus President  
Classrooms  
Copy Center  
Faculty Resource Center  
Veterans Meeting Room  
Vice President of Instruction  
Visual Arts Student Gallery

### B (Gym/Athletics)

#### Ground Floor

Basketball & Volleyball Court  
Coaches' Offices  
Equipment Room  
Locker Rooms

#### First Floor

Dance Room  
Executive Director of Athletics  
Fitness Classroom

### C (Santa Catalina)

#### Ground Floor

Aztec Press/Journalism  
Bookstore  
Classrooms  
Digital Arts  
Employee Lactation Room  
Faculty Offices  
Fashion Design & Clothing  
Film Studio  
Photography Lab  
Plant Operations

#### First Floor

Business Services  
Cashier  
DSR (Disabled Student Resources)  
Student Services Center:  
Admissions & Registration  
Advising & Counseling  
Assessment/Testing Center  
Career Services  
Financial Aid  
International Student Services  
Veterans Benefits  
Vice President of Student Development

#### Second Floor

Academic Computer Commons  
Classrooms  
Learning Center

#### Third Floor

Library

### D (HRP)

#### First Floor

Classrooms  
Nursing Lab  
Simulation Lab

#### Second Floor

Faculty Offices

### E (Tortolita)

#### First Floor

Classrooms  
Technology Lab

#### Second Floor

Dean of Science, Technology, Engineering & Math  
Faculty Offices

### F (Rincon)

#### First Floor

Classrooms  
Geology Classroom  
Physics Lab  
Rincon Cafe

#### Second Floor

Faculty Offices  
Lecture Rooms

### H (Tucson)

#### Ground Floor

Classrooms  
Dean of Nursing & Health Related Professions  
Respiratory Skills Labs

### First Floor

Classroom  
Dean of Business, Computers, World Languages, Social Sciences & FSS

#### Faculty Offices

### Second Floor

Classrooms  
Sign Language Lab

### Third Floor

Classrooms  
Engineering & Tech Lab

### J (Sentinel Peak)

#### Ground Floor

Classrooms  
Saguaro Room

#### First Floor

Classroom  
Dean of Arts, Communications & Humanities  
Faculty Offices

### Second Floor

Classrooms

### Third Floor

Classrooms  
Faculty Offices

### K (Science)

#### First Floor

Biology Lab  
Biotech Lab  
MLT Lab  
Radiologic Tech Lab

#### Second Floor

Chemistry Lab  
Classrooms  
Dental Clinic  
Dental Lab

### L (Art)

Art Studios and Classrooms  
Faculty Offices

### R (Tumamoc)

Archaeology Center  
Campus Police  
Receiving & Mailroom  
Technology Services

### CFA (Center for the Arts)

Black Box Theatre  
Box Office  
CFA Offices  
Classrooms & Studios  
Communication Wing  
Drama/Theatre Wing  
Faculty Offices  
Louis Carlos Bernal Gallery  
Music Wing  
Prosencium Theatre  
Recital Hall

### FSSC (Fitness & Sport Sciences Center)

Athletic Fields/Track/Courts  
Classrooms  
Coaches' Offices  
Faculty Offices  
Fitness and Conditioning Center (FCC)  
Group Activities Room  
Locker Rooms  
Sports Injury Management Area

# Admissions, Registration and Records



## Admission to the College

Pima Community College (PCC) encourages all individuals to further their educational interests. No person shall be denied admission to or registration for courses at the College on the basis of gender, race, ethnicity, national origin, age, disability, sexual orientation, gender identity or expression.

Please note that some programs at the College have special admissions requirements. Admission to specific degree (or certificate) programs is not guaranteed. For admissions information regarding these programs, please contact the program directly:

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 Road	206-2744

## Eligibility for Admission

Pima Community College's open-door admission policy means that a PCC education is available to everyone. About 62,000 students of different ages, ethnicities and backgrounds take courses at PCC and help create a lively, exciting learning environment.

You are eligible for admission as a degree seeking student if you meet one of the following criteria:

- You are a graduate of an accredited high school
- You are a recipient of a GED certificate of high school equivalency
- You are a graduate of an accredited college or university or a transfer student in good standing from an accredited college or university
- You are a non-high school graduate or GED recipient, at least 16 years old, and demonstrate evidence of potential success.
- If you are a post-secondary transfer student and do not have a HS diploma or GED, you must demonstrate evidence of potential success.

Students will be admitted in one of three categories:

1. **Regular:** A student who has met admission criteria and is working toward the completion of a certificate, degree, or clock hour courses and/or program.
2. **Special:** A student who has not met admission criteria, is under the age of 16, or is enrolled in courses that do not lead to the completion of a certificate or degree.
3. **International:** A student who is applying for 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.

## 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 pub-

lic 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 Vice President of Student Development is responsible for the consistent and uniform implementation of this regulation and related Standard Practice Guides (SPGs). The Vice President 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.

### 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 a composite score of 93 or more on the Preliminary Scholastic Aptitude Test (PSAT), or a passing score on the relevant portions of the Arizona Instrument to Measure Standards Test (AIMS), 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 Vice President of Student Development and the Office of Admissions and Records.

The College has the right to deny admission to underage students who fail to meet these guidelines or who have been suspended or otherwise officially excluded from secondary schools for disci-

plinary reasons. Approval or denial for admission and subsequent registration(s) into courses will be made by the Vice President of Student Development or designee.

## Admission of International Students

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

International students wishing to study as an 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 appropriately evaluated for elective credit.
4. Submit official proof of English proficiency as indicated by the Test of English as a Foreign Language (TOEFL) score (minimum 500 on the paper/pencil exam, or 173 on the computer-based version or 61 on the Internet-based test). This requirement may be waived if a student's native language is English.
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 U.S. Citizenship and Immigration Services 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.

## Student Residency Requirements

For tuition purposes, students must indicate their residency status when applying for admission. Legal residency must be determined by the College before registration and payment of fees for any semester or session. It is the student's responsibility to register under the correct residency status. This process of determining residency is called domicile determination. Domicile is determined as of the first day of the session in which a student is enrolling. The 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 Student Services Center.

State law 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 coun-

ty resident pursuant to A.R.S. Section 15-1802.01. Undocumented students with deferred action status under Deferred Action for Childhood Arrivals (DACA), as demonstrated with a valid I-766, will be considered for In-State tuition status. 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.
  - d. The person's spouse has established domicile in this state for at least one year and has demonstrated intent and financial independence and is entitled to claim the student as an exemption for state and federal tax purposes or the person's spouse was temporarily out-of-state for educational purposes, but maintained a domicile in this state. If the person is a non-citizen, the person must be in an eligible visa status pursuant to federal law to classify as an in-state student for tuition purposes.
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, moves 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. A spouse or a dependent child does not lose in-state student classification under this subsection if the spouse or dependent child qualifies for in-state tuition classification at the time the spouse or dependent child is accepted for admission to a community college under the jurisdiction of a community college district governing board or a university under the jurisdiction of the Arizona board of regents. 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 the following requirements:
  1. Registered to vote in this state. **And,**
  2. 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:
    - a. An Arizona driver license.
    - b. Arizona motor vehicle registration.
    - c. Employment history in Arizona.
    - d. Transfer of major banking services to Arizona.
    - e. Change of permanent address on all pertinent records.
    - f. Other materials of whatever kind or source relevant to domicile or residency status.
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 noncitizens (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

Student Requirements for Assessment, Advising, and Orientation

### Assessments

Before you can register for certain courses, you may need to take the free basic skills assessments in reading, writing and/or mathematics.

Visit any campus Student Services Center to take the assessments. You do not need an appointment but do plan ahead and prepare to spend two to three hours taking the assessments. Bring a photo ID with you when you come to assess. It's important to do your best on the assessments, we recommend reviewing the assessment preparation tools available at [www.pima.edu/assessment](http://www.pima.edu/assessment).

### Special Accommodations

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

### Other Testing Services

For students without a high school diploma, PCC offers the GED (General Education Development) test. This test is available 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

Advising staff 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.

### Advising Resources for Students

All students are urged to make use of MyDegreePlan, the College Catalog, the Schedule of Classes, and the Student Handbook when selecting courses or developing an educational plan. These resources are available at all Student Services Centers or at [www.pima.edu](http://www.pima.edu). MyDegreePlan is available for all active students through their MyPima student account.

### 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 in many formats. Visit [www.pima.edu/orientation](http://www.pima.edu/orientation) or contact any Student Services Center for more information.

## Declaring a Program of Study

Advising staff and counselors are available at all campuses to help you choose the right program of study, which may affect your financial aid or veterans benefits eligibility. Students may change or update their program of study through the online Student Intent process once per semester or at any campus Student Services Center. Declaring a program of study will help you clarify your academic goals and will increase your success.

## 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 Commission on 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:

- Be admitted to Pima Community College
- Request an official transcript from the institution(s) previously attended to be sent directly to the 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. Requests for transcript evaluation should be submitted at least one semester prior to applying for graduation.

Pima Community College will consider appropriately evaluated international transcripts for elective credit. Evaluations will not be considered unless they were performed by a member company of the National Association of Credential Evaluation Services (NACES). You can find a list of providers at [www.naces.org](http://www.naces.org). Please verify that the company that you use is approved to perform comprehensive evaluations for transfer to U.S. Regional Accredited Institutions such as county community colleges and state universities.

## 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 more than 400 college and universities that willingly provide post-secondary (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. For information about the Department of Veterans Affairs (DVA) educational assistance, please see the Financial Assistance section.

## General Education Mobile (GEM)

Pima Community College is a General Education Mobile (GEM) participating institution. GEM allows active-duty Air Force students the opportunity to complete their 15-hour Community College of the Air Force (CCAF) General Education Course requirements online through Pima Community College and the

General Education Mobile program (GEM) site. Courses are offered in the five CCAF general education areas: Oral Communication, Written Communication, Mathematics, Social Sciences and Humanities. For more information, visit [www.pima.edu](http://www.pima.edu).

## Credit by Examination

Pima Community College realizes that when students enter the College, they may already have 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 through examinations.

## National Standardized Tests

Successfully pass these national exams to earn equivalent College credit.

- Advanced Placement (AP)
- International Baccalaureate (IB)
- College-Level Examination Program (CLEP)

Credits earned through this process:

- may meet general education requirements - the display will indicate general education categories that the exam may fulfill
- may or may not transfer to other colleges or universities - exams are re-evaluated upon transfer to another institution so students planning to transfer should check with the transfer institution to determine if and how credits are awarded
- do not fulfill the requirement of completing 15 credits at PCC
- cannot be used in qualifying a student for veterans benefits
- are not eligible for financial assistance
- are awarded a grade of "TP" and will not be stated in terms of a specific course grade. No record is made of failing scores.

## Challenge / Proficiency Exams Credit

For-credit challenge or proficiency exams allow you to take an examination for credit in a course when you believe you have the same knowledge through some other experience (e.g., native language speaker or job experience). These exams are offered under limited circumstances at the instructor's discretion.

Contact the instructor for permission to take an exam for credit 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. Challenge or proficiency exams are not offered for fourth semester language classes.

## Bypass Courses

Other challenge or proficiency exams allow you to bypass lower-level courses to accelerate your progress toward earning your degree or certificate. For these tests you do not need to register or pay for the course, nor will you earn college credit if you pass the exam.

These examinations are offered in Biology (to bypass BIO 156), Biotechnology (to bypass BIO 110), Chemistry (to bypass CHM 080) and French, German and Spanish language classes. Learn more about each of these tests on the College Assessment Center website.

## 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 ([www.collegeboard.com](http://www.collegeboard.com)).

The International Baccalaureate Diploma Program also is offered in select high schools. This rigorous two-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 website for IB Diploma Programme ([www.ibo.org/ibo](http://www.ibo.org/ibo)).

An effort has been made to match Pima Community College's AP and IB scores with the three state universities' AP and IB 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 Category	PCC Course Equivalency	PCC Credit
<b>Art History</b>	4 or 5	Humanities and Fine Arts - Humanities	ART 130 & 131	6
	3	Humanities and Fine Arts - Humanities	ART 130 or 131	3
<b>Art: Studio Art—Drawing</b>	4 or 5	Humanities and Fine Arts—Art	ART 110	3
<b>Art: Studio Art—2D</b>	4 or 5	Humanities and Fine Arts—Art	ART 115	3
<b>Art: Studio Art—3D</b>	4 or 5	Humanities and Fine Arts—Art	ART 120	3
<b>Biology</b>	4 or 5	Biological and Physical Sciences	BIO 181IN & 182IN	8
	3	Biological and Physical Sciences	BIO 100IN	4
<b>Calculus</b>	A/B exam	Mathematics	MAT 220	5
	B/C exam	Mathematics	MAT 220 & 231	9
	B/C exam	Mathematics	MAT 220	5
<b>Chemistry</b>	5	Biological and Physical Sciences	CHM 151IN & 152IN	10
	4	Biological and Physical Sciences	CHM 151IN	5
<b>Chinese Language and Culture</b>	5	Other Requirements-Second Language	CHI 101, 102, 201 & 202	20
	4	Other Requirements-Second Language	CHI 101, 102 & 201	15
	3	Other Requirements-Second Language	CHI 101 & 102	10
<b>Computer Science</b>	3, 4 or 5	None	CIS 131	5
<b>Economics</b>	Microeconomics	Social and Behavioral Sciences	ECN 201	3
	Macroeconomics	Social and Behavioral Sciences	ECN 202	3
<b>English</b>	Literature/Composition	English Composition	WRT 101	3
	<b>English Language/Composition</b>	English Composition	WRT 101	3
<b>Environmental Science</b>	4 or 5	None	ZTR ELEC*	3
<b>European History</b>	4 or 5	Humanities and Fine Arts - Humanities OR Social and Behavioral Sciences	HIS 101 & 102	6
	<b>French Language and Culture</b>	5	Other Requirements—Second Language	FRE 101, 102, 201 & 202
	4	Other Requirements—Second Language	FRE 101, 102 & 201	12
	3	Other Requirements—Second Language	FRE 101 & 102	8
<b>German Language and Culture</b>	5	Other Requirements—Second Language	GER 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	GER 101, 102 & 201	12
	3	Other Requirements—Second Language	GER 101 & 102	8
<b>Government &amp; Politics</b>	Comparative	Social and Behavioral Sciences	POS 204	3
	United States	Social and Behavioral Sciences	POS 201	3

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

Exam Title	Exam Score	PCC General Education Category	PCC Course Equivalency	PCC Credit
<b>Human Geography</b>	4 or 5	Social and Behavioral Science	GEO 103	3
<b>Japanese Language and Culture</b>	5	Other Requirements-Second Language	JPN 101, 102, 201 & 202	20
	4	Other Requirements-Second Language	JPN 101, 102 & 201	15
	3	Other Requirements-Second Language	JPN 101 & 102	10
<b>Latin-Vergil</b>	3, 4 or 5	Other Requirements—Second Language	LAT 101 & 102	8
<b>Music Theory</b>	4 or 5	Humanities & Fine Arts - Fine Arts	MUS 125 & 127	5
<b>Physics</b>				
Physics B	4 or 5	Biological and Physical Sciences	PHY 121IN & 122IN	10
Physics C - Electricity & Magnetism	3, 4 or 5	Biological and Physical Sciences	PHY 122IN	5
Physics C - Mechanics	3, 4 or 5	Biological and Physical Sciences	PHY 121IN	5
<b>Psychology</b>	4 or 5	Social and Behavioral Sciences	PSY 101	4
<b>Spanish Language</b>	5	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	4	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	3	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
<b>Spanish Literature</b>	5	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	4	Other Requirements—Second Language	SPA 101, 102, 201, 202 & 251	19
	3	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
<b>Statistics</b>	3, 4 or 5	Mathematics (AGEC-A only)	MAT 167	3
<b>U.S. History</b>	4 or 5	Social and Behavioral Sciences	HIS 141 & 142	6
<b>World History</b>	4 or 5	Humanities and Fine Arts - Humanities OR Social and Behavioral Sciences	ZTR HU or ZTR SB**	6

\* ZTR ELEC awards credit as an elective applicable toward transfer degrees.

\*\* ZTR HU or ZTR SB awards credit toward either AGECEC Humanities and Fine Arts - Humanities or AGECEC Social and Behavioral Sciences. The default is Social and Behavioral Sciences.

### International Baccalaureate Diploma Programme (IB)

#### International Baccalaureate (IB) Table

Exam Title	Exam Score	PCC General Education Category	PCC Course Equivalency	PCC Credit
<b>American History</b>	5, 6 or 7	Humanities and Fine Arts - Humanities OR Social and Behavioral Sciences	HIS 141 & 142	6
<b>Biology</b>	6 or 7	Biological and Physical Sciences	BIO 181IN & 182IN	8
	4 or 5	Biological and Physical Sciences	BIO 100IN	4
<b>Business Management</b>	5, 6 or 7	None	ZTR ELEC*	3
<b>Chemistry</b>	5	Biological and Physical Sciences	CHM 151IN & 152IN	8
	4	Biological and Physical Sciences	CHM 151IN	4
<b>Classical Languages: Latin</b>	4, 5, 6 or 7	Other Requirements - Second Language	LAT 101 & 102	8
<b>Computer Science</b>	5, 6 or 7	None	CIS 279	5
<b>East, Southeast Asian and Oceania History</b>	5, 6 or 7	None	ZTR ELEC*	6
<b>Economics</b>	5, 6 or 7	Social and Behavioral Sciences	ECN 201 & 202	6
<b>English</b>	5,6 or 7	English Composition	WRT 101	3
<b>European History</b>	5,6 or 7	Humanities and Fine Arts—Humanities OR Social and Behavioral Sciences	HIS 101 & 102	6
<b>Geography</b>	5, 6 or 7	Social and Behavioral Sciences	GEO 103	3
<b>Islamic History</b>	5, 6 or 7	Humanities and Fine Arts - Humanities	HIS 277	3
<b>Mathematics</b>	5, 6 or 7	Mathematics	MAT 220	5
<b>Modern Languages: French</b>	5, 6 or 7	Other Requirements - Second Language	FRE 201 & 202	8
	4	Other Requirements - Second Language	FRE 101 & 102	8

**International Baccalaureate (IB) Table** *(continued)*

Exam Title	Exam Score	PCC General Education Category	PCC Course Equivalency	PCC Credit
<b>Modern Languages: German</b>	5, 6 or 7	Other Requirements - Second Language	GER 201 & 202	8
	4	Other Requirements - Second Language	GER 101 & 102	8
<b>Modern Languages: Spanish</b>	5, 6 or 7	Other Requirements - Second Language	SPA 201 & 202	8
	4	Other Requirements - Second Language	SPA 101 & 102	8
<b>Music</b>	5, 6 or 7	Humanities and Fine Arts - Humanities OR Fine Arts	MUS 201 & 202	6
<b>Physics</b>	6 or 7	Biological and Physical Sciences	PHY 121IN & 122IN	10
	5	Biological and Physical Sciences	PHY 121IN	5
<b>Psychology</b>	5, 6 or 7	Social and Behavioral Sciences	PSY 101	4
<b>Social and Cultural Anthropology</b>	4	Social and Behavioral Sciences	ANT 102	3

\* ZTR ELEC awards credit as an elective applicable toward transfer degrees

**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 PCC's Northwest Campus (520-206-2200) and the Davis-Monthan Air Force Base Education Center (520-206-4866), as well as the University of Arizona Testing Office (520-621-7589). Contact these offices to obtain information on the specific examinations offered.

In most cases 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 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.

**College-Level Examination Program (CLEP) – Subject Exams**

Exam Title	Exam Score	PCC General Education Category	PCC Course Equivalency	PCC Credit
<b>American Government</b>	50	Social and Behavioral Science	POS 201	3
<b>American Literature</b>	55	Humanities and Fine Arts - Humanities	ZTR HU*	3
<b>Analyzing and Interpreting Literature</b>	50	Humanities and Fine Arts - Humanities	ZTR HU*	3
<b>Biology</b>	50	None	ZTR ELEC**	3
<b>Calculus</b>	50	Mathematics	MAT 220	5
<b>Chemistry</b>	50	Biological and Physical Sciences	CHM 151IN	5
<b>College Algebra</b>	50	Mathematics (AGEC-A only)	MAT 151	4
<b>College Composition Modular</b>	50	English Composition	WRT 101	3
<b>English Literature</b>	55	Humanities and Fine Arts - Humanities	ZTR HU*	3
<b>Financial Accounting</b>	50	None	ZTR ELEC**	3
<b>French Language</b>	66	Other Requirements—Second Language	FRE 101, 102, 201 & 202	16
	62		FRE 101, 102 & 201	12
	55		FRE 101 & 102	8
	50		FRE 101	4
<b>German Language</b>	60	Other Requirements—Second Language	GER 101, 102, 201 & 202	16
	51		GER 101, 102 & 201	12
	46		GER 101 & 102	8
	39		GER 101	4
<b>History of the United States I: Early Colonization to 1877</b>	50	Humanities and Fine Arts - Humanities OR Social and Behavioral Sciences	HIS 141	3

**College-Level Examination Program (CLEP) – Subject Exams** *(continued)*

Exam Title	Exam Score	PCC General Education Category	PCC Course Equivalency	PCC Credit
<b>History of the United States II: 1865 to Present:</b>	50	Humanities and Fine Arts - Humanities OR Social and Behavioral Sciences	HIS 142	3
<b>Human Growth &amp; Development</b>	50	None	ZTR ELEC**	3
<b>Information Systems and Computer Applications</b>	50	None	CIS 000, departmental elective credit	3
<b>Introductory Business Law</b>	50	None	ZTR ELEC**	3
<b>Introductory Psychology</b>	50	Social and Behavioral Science	PSY 101	4
<b>Introductory Sociology</b>	50	Social and Behavioral Science	SOC 101	3
<b>Precalculus</b>	50	Mathematics (AGEC-A Only)	MAT 187	5
<b>Principles of Macroeconomics</b>	50	Social and Behavioral Science	ECN 202	3
<b>Principles of Management</b>	50	None	MGT 000 departmental elective credit	3
<b>Principles of Marketing</b>	50	None	MKT 000 departmental elective credit	3
<b>Principles of Microeconomics</b>	50	Social and Behavioral Science	ECN 201	3
<b>Social Sciences and History</b>	Under review*			
<b>Spanish Language</b>	68	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
	66		SPA 101, 102 & 201	12
	55		SPA 101 & 102	8
	50		SPA 101	4
<b>Western Civilization I: Ancient Near East to 1648</b>	50	Humanities and Fine Arts - Humanities OR Social and Behavioral Sciences	HIS 101	3
<b>Western Civilization II: 1648 to the Present</b>	50	Humanities and Fine Arts - Humanities OR Social and Behavioral Sciences	HIS 102	3

\* ZTR HU awards credit toward AGECE Humanities and Fine Arts - Humanities.

\*\* ZTR ELEC awards credit as an elective applicable toward transfer degrees.



## 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. The Schedule of Classes is available online and the Student Services Centers have limited printed copies.

There are two ways to register for classes:

- MyPima online registration
- Walk-in registration at all campus Student Services Centers.

Students can audit most credit classes 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. Once you begin a course for credit, you cannot change to audit status.

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

For more information:

- See the PCC website at [www.pima.edu](http://www.pima.edu)
- See the Schedule of Classes
- Contact any campus Student Services Center or the general information line (206-4500)

## Maximum Credit Hours Per Semester

Students can enroll in a maximum of 18 credit hours 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 Student Services Center.

## Course Prerequisites

Students must meet course prerequisites as stated in this catalog and the Schedule of Classes 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 Student Code of Conduct. Those standards, as well as the student complaint process, are explained online under Student Rights and Responsibilities at [www.pima.edu/studenterv/studentcode](http://www.pima.edu/studenterv/studentcode).

### If You Have a Problem...

Students with general complaints should see either the campus Vice President of Instruction or the campus Vice President of Student Development for guidance in resolving problems. Student Rights and Responsibilities regarding procedures for appealing grades or code of conduct penalties can be found online at [www.pima.edu/studenterv/studentcode](http://www.pima.edu/studenterv/studentcode).

### 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 Student Services Center.

### 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. 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.

Third party transaction permission does not allow the third party access to any of the student's academic or financial information. A FERPA release must be completed if the student wishes information to be released to a third party.

## 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 campus Student Services Center. 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 – Withdrawal: This grade may be requested by the student only 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.
- 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.

### 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 on or before the first two-thirds of a class to students who have stopped attending the class before that deadline.

### 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

Grades are viewable on the student's MyPima Academics tab. Grade reports or mailers are not mailed.

### Appeal of Grades

If you would like to challenge your grade, you must do so through a formal process. Please refer to [www.pima.edu/studentcomplaints](http://www.pima.edu/studentcomplaints).

### 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.

## Standards of Academic Progress

### Good Academic Standing

PCC students who have completed 20 semester credit hours with a cumulative grade point average of at least 2.0 will be considered in Good Academic Standing. Students who have attempted 36 semester credit hours must have a completion rate of 67 percent or better, as well as a 2.0 or better cumulative GPA, to be considered in Good Academic Standing. Completion is determined by dividing the number of credits completed by the number of credits attempted. For example: If a student attempted 36 credit hours, they must have completed at least 24 with a passing grade to meet 67 percent completion (24 divided by 36 = .67 percent). Withdrawals, incomplete grades and repeated courses are considered attempted courses. Repeated courses with a grade that is the same, or lower than, a prior attempt are considered attempted but not completed credit. Students who have not completed 20 semester credits and have a cumulative grade point average of less than 2.0 or have a completion percentage less than 67 percent at any time are strongly encouraged to seek assistance from College advisors.

### Academic Probation

If a student fails to meet the standards established for Good Academic Standing, they will be placed on Academic Probation. Academic Probation status indicates that the institution is seriously concerned about the student's academic progress. A student on academic probation will:

- Be notified via College email that they are being placed on Academic Probation.
- Be required to complete an Academic Success Workshop at a campus. **Until completion of the Workshop, registration will be blocked.** After successful completion of the workshop, a student will be allowed to register for future semesters but will continue to receive the workshop hold until such time that they have made progress toward Good Academic Standing. Making progress is defined as completing 67 percent or more of the credits attempted with a 2.0 or better GPA in a term.
- Have their academic progress monitored each semester, until Good Academic Standing is regained.

### Academic Restriction

Students who have completed 40 semester hours with a cumulative GPA of less than 2.0 or have 56 attempted semester hours with a completion rate of less than 67 percent, will be placed on Academic Restriction. A student on Academic Restriction will be:

- Notified via College email that they are being placed on Academic Restriction status.
- Blocked from future registration.** Students will be required to meet with a counselor to complete additional requirements prior to future registration.
- Restricted to enrolling in no more than 12 hours in the next semester (without prior approval).
- Have their academic progress monitored each semester, until Good Academic Standing is regained.

### Academic Disqualification

Students on Academic Restriction, who obtain a GPA of at least 2.0 and complete more than 67 percent of their courses for the next semester will be allowed to continue. Students on Academic Restriction who do not complete more 67 percent of their courses and receive a GPA of at least 2.0 will be Academically Disqualified.

Students who are Academically Disqualified will not be permitted to enroll in the next traditional semester. After the next traditional semester, students will be placed on Academic Restriction status until they regain Good Academic Standing.

### 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 may have up to three consecutive terms of coursework 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. The student must have earned a minimum of 12 credits with a minimum 2.5 GPA after the grades to be alleviated, and three years must have elapsed since the substandard grades were earned. Eligibility for renewal applies only to students who have not already completed requirements for a certificate or degree. 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 Student Services Center.

### Financial Aid and Academic Status

Students receiving financial aid should be aware that there are additional and separate policies and requirements. Information is available at any campus Student Services Center.

### College Rights in Maintaining Academic Standards

The College reserves the right to designate students as being on Academic Probation, Restriction, or Disqualification status based on additional criteria. Academic Probation, Restriction, and Disqualification procedures may be modified by the College for students who are fully enrolled in virtual or distance education courses and who reside outside the Tucson metropolitan area.

## 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, six or more credit hours for a 10-week summer session, or four or more credit hours for a five-week summer session will be classified as full-time students.

**Note:** For financial aid 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 one to 11 credit hours during the fall or spring semester, five or fewer credit hours for a 10-week summer session, or three 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, fees and refund policies for the Fall 2013, Spring 2014 and Summer 2014 (all sessions) terms. The tuition you pay is determined by whether or not you are an in-state resident or a nonresident and whether the courses you take are subject to differential tuition. For further residency information, please review the residency requirements or see an advisor.

**Tuition, fees, and refunds are subject to change without notice. See [www.pima.edu/tuition](http://www.pima.edu/tuition) for the most up to date information.**

### Current Fees

(rates subject to change)

Student Services 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 Delivery Fee .....	\$9.00
Degree/Certificate Application (per term) .....	\$15.00
Career Interest Test.....	Not to exceed \$20.00
GED Test.....	\$100.00
GED Test Repeat Fee (each section) .....	\$20.00
ID Card.....	\$2.00
Aviation Technology Exam.....	\$225.00
Payment Plan Enrollment Fee .....	\$15.00
Payment Plan Enrollment Fee .....	\$30.00
	(after payment deadline)
Payment Plan Late Fee.....	\$25.00 (per occurrence)
Returned Check Fee.....	\$25.00 (per occurrence)
Late Fee on Past Due Balance.....	\$25.00 - \$100.00

### International Student Insurance Fees\* (rates subject to change annually)

Please see: [www.pima.edu/tuition](http://www.pima.edu/tuition)

*Effective Aug. 1, 2012 for 2012-2013 academic year.*

F-1 Students .....	\$474.00 (per six months)
Spouse (Optional) .....	\$2,040.00 (per six months)
Child (Optional).....	\$474.00 (per six months)

Health insurance for International Students and their dependents is coordinated through the International Student Services Office (520-206-6732).

\* International Students are required to have health insurance. The International Student Insurance Fee provides coverage for a six-month period. International Students may use their own insurance from their home country if it will cover their medical expenses within the U.S.

International Students have the option to elect to purchase health insurance for their spouse and/or children in six-month increments.

## Financial Holds

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 debt collection agency you must deal directly with the agency to pay off your debt. If you have any questions about your debt, please contact Student Accounts at [studentaccountsonline@pima.edu](mailto:studentaccountsonline@pima.edu) or (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
Debt collection Agency Fees.....	Not to exceed 50 percent 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. Failure to pay by the deadlines may result in the loss of registration or late fees. The payment deadlines for each academic term can be found in the Schedule of Classes, on our website at [www.pima.edu](http://www.pima.edu), and at any campus cashier's, admissions or financial aid office. **Please Note:** If you are unable to pay the required tuition, options such as a Payment Plan are available to you.

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/refund/audit 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 and Discover
- Check - personal, traveler's or cashier's
- Money order
- Cash (please do not mail). Please refer to [www.pima.edu/](http://www.pima.edu/) payments for more information.
- Pima Community College Gift Certificate

### Paying Online

To pay online, login to your MyPima Account, select the Academics tab and view the My Account section. Your current balance is

displayed in this section. You can then select the MyAccount Manager link in this section to make an online payment. Online payments can be made using a credit card or by electronic transfer from your personal checking or savings account. Please note the electronic transfer option requires a three day verification period.

### 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 Student Accounts 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 (e.g., Fall 2013) 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  
Student Accounts Office  
4905D 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.
- 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 debt 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 Student Services Center 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 percent 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 by the Student Accounts Office beginning the week following drop/refund/audit deadline. See the Schedule of Classes for exact dates. Early refunds must be requested through the Student Accounts Office at (520) 206-4574.

**Note:** Withdrawing from a class after the drop/refund/audit will not create a refund or reduce your amount owed.

### Regular Refund Schedule

#### Course Length

#### (Enrollment Period)..... Refund Deadline

Regular 16 weeks .....	within 13 calendar days after start of the semester
Seven or more weeks .....	within seven calendar days from the first class meeting or the start date of the term. See instructor for information.
Four or more weeks .....	within four calendar days from the first class meeting
Two or less than four weeks ....	by the day of the first class meeting
less than two weeks.....	prior to the day of first class meeting
Noncredit/Study tours .....	Special conditions, see Student Refund Policy for Noncredit Activities and Study Tours
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 Notes on Refunds

- Refunds for payments made by cash or check are generally processed via check or electronic refund. The electronic refund option allows any refund due you to be delivered to your checking or savings account electronically.
- If you paid by credit card, your refund will be credited back to the same card.

- Payment made by a sponsoring agency will be returned to that agency.
- The first official refund checks will be mailed after the drop/refund/audit deadline.
- Any outstanding debts owed to the College may be deducted from your refund.
- If the College cancels a class, you will be refunded all applicable tuition and fees.
- If you receive federal financial assistance, your refund will be paid directly back to the sponsoring program as required under federal guidelines. Please see "Return of Federal Financial Aid Funds" for more details.

## 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. 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.

You must make your special provisions refund request before the end of the academic term from which you withdrew. Requests for refunds made after the academic term has concluded will not be granted.

## 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 stipulate that a student who receives Federal Student Aid (FSA) funds and completely withdraws from the College is required to return a percentage of those funds.

Students "earn" FSA funds in direct proportion to the length of time the student remains enrolled in the term.

The College is required to perform the following steps in the return of funds process:

1. Determine the percentage of the period that the student completed (Days attended divided by the Days in period = Percentage completed).
2. Apply this same percentage to the total awarded FSA funds for which the student established eligibility before withdrawing (Total aid disbursed X Percentage completed = Earned aid).
3. Subtract earned aid from disbursed aid. This is the unearned aid. (Earned aid minus Disbursed aid = 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 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 FSA 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 FSA programs, then the student's share is allocated in its entirety.
6. If the amount of cash disbursement received by the student exceeds the student's share, that amount must be repaid to the College directly.

## Withdrawals

The withdrawal date that is utilized, depends on whether the student officially withdraws, or if the student drops all courses 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 does not notify the College, the College produces a report of the last date of academic activity. For example,

the last log in for course(s) taken through the internet or the date reported by faculty during grade submission which may include last submission of coursework, test taken or attendance in the class.

- 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 term, the student's FSA funds are completely cancelled and the student must repay all FSA funds disbursed.

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

## Noncredit Refund Policy

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 "Cancellation Policies for Study Tours" 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 is canceled. For more information, contact the Community Campus at (520) 206-6579.

## 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 percent of the fee will be refunded when your cancellation request is received 60 calendar days or more prior to the tour start date.

- 75 percent of the fee will be refunded when your cancellation request is received 46-59 days prior to the tour start date.
- 50 percent 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) 206-6579 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). Certain scholarships may require a separate application.

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

Limited financial assistance funds are available. In order to receive first consideration, students are encouraged to complete the FAFSA prior to the priority deadline of April 4. Please check [www.pima.edu](http://www.pima.edu) for other financial aid deadlines.

However, if the priority date is missed, students may still apply at any time of the year. Students who apply and submit all paperwork by July 1 are assured that their eligibility for aid will be determined by the College's payment deadlines.

All students should apply. Students who do not demonstrate financial need may qualify for scholarships or other programs.

Additional information regarding Financial Aid processes are available at [www.pima.edu/financialaid](http://www.pima.edu/financialaid) and your MyPima Financial Aid Tab for more details.

### Federal and State Financial Aid Programs

#### Federal Pell Grants

The Federal Pell Grant Program provides financial assistance for students who meet federal eligibility guidelines. The federal government establishes who is qualified through the completion of the Free Application for Federal Student Aid (FAFSA).

#### Federal Stafford

The Federal Direct Stafford Loan Program offers "subsidized" and "unsubsidized" loans. A Federal Direct subsidized Stafford Loan is awarded on the basis of financial need. If a student qualifies for a subsidized Stafford loan, the federal government pays the interest on the loan as long as the student remains enrolled at least six credits. The student is responsible to begin repaying the interest upon dropping below six credits or leaving school. On the other hand, an unsubsidized Federal Direct Stafford loan is not awarded on the basis of need. If a student qualifies for an unsubsidized Federal Direct Stafford loan, the student pays the interest from the date the loan is given until the loan is repaid in full. A student enters into repayment of the loan or loans beginning six (6) months after they graduate, leave school, or drop below half-time enrollment.

#### Federal Direct Plus Loan Program

The Federal Direct Plus Loan program is for parents who have dependent students. This loan program enables parents with a good credit history 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, minus any amount of other financial aid received also deducted. The interest rate is variable, but it will

never exceed 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 4.**

### 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 part-time in a job that is either on-campus or off-campus. The program encourages community service work and work related to students' program of study.

### Arizona Leveraging Educational Assistance Partnership (LEAP)

The Arizona Leveraging Educational Assistance Partnership (LEAP) grant program makes grants available to students with financial need. The College determines the amount of each award based on individual need and enrollment status.

### For More Information

For more information on managing your financial aid, Student Code of Conduct, Satisfactory Academic Progress guidelines and Title IV refunds (what happens if you can't continue your courses), go to [www.pima.edu/financialaid](http://www.pima.edu/financialaid) or your MyPima Financial Aid Tab.

Pima also offers financial aid workshops. You can find the schedule at [www.pima.edu/calendars](http://www.pima.edu/calendars).

### 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 at [www.pima.edu/foundation/scholarships](http://www.pima.edu/foundation/scholarships).

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 Pima, the Office of Financial Aid and the community.

## PCC Scholarships

Pima Community College helps student achieve their dreams through scholarships and grants. For scholarship opportunities, visit [www.pima.edu/scholarships](http://www.pima.edu/scholarships).

### 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.

## Payment Plan

If you can't pay your tuition all at once, you can enroll in a Payment Plan. Payment Plans are available beginning the first day of web registration for the fall and spring semesters. They do not incur interest charges. Payment Plans are not available to International Students.

For a more comprehensive discussion of financial aid and the payment plan, please visit the Pima Community College website: [www.pima.edu](http://www.pima.edu).

## 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, 31, 32, 33, 35, and VRAP), and reservists Arizona National Guard and certain Federal Reservists under Title 10, Chapter 1606 and 1607, must be certified through the PCC Veterans Affairs Office. Initial application to start veteran benefits (22-1990 or VONAPP) may take up to 60 days for DVA to complete. Students are encouraged to complete the required DVA procedures as early as possible through any campus Student Services Center. 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

Upon submission of a VA Certification worksheet and necessary documentation, eligible persons and continuing veterans will be certified each semester for courses that fall within their DVA approved program. Please allow 30 days for electronic DVA processing.

For fastest certification of your enrollment by PCC, submit your certification worksheet via your MyPima Veterans tab as soon as you register for your courses for a term. If you make changes to your program or courses after your courses are certified, or change your program between terms, you must notify the Vet-

erans Affairs Office at [veterans@pima.edu](mailto:veterans@pima.edu). Failure to do so may result in a delay in your certification, a delay in the receipt of your benefits, or an incorrect certification and your needing to pay funds back to the DVA.

## 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 given term. In a "traditional" semester (16 weeks in length), this measure is determined by the following:

- Full-time: 12 or more semester credits
- Three-quarter-time: nine -11 semester credits
- Half-time: six-eight semester credits

If you enroll less than half-time in a term, you will be eligible for reimbursement of tuition and college fees, only.

Veterans at 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. Current pay charts are available in the campus Student Services Center or online at [www.gbill.va.gov](http://www.gbill.va.gov). As of Aug. 1, 2011, DVA will pay only in-state tuition and fees for Post 9/11 GI Bill (Chapter 33) students.

Enrollment in accelerated terms, or any course that is less than 16 weeks in length, 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). Enrolling in a combination of traditional and accelerated courses may 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 is received and posted to the students' record. Combination of open entry/open exit courses with other traditional or accelerated courses has a direct impact on your monthly entitlement and rates.

Pima Community College offers any person who is eligible for and has applied for benefits for education under the Montgomery GI bill (Chapters 30, 31, 33, 35, 1606, 1607, and VRAP) deferment of payment of tuition, fees and required books and materials. Pima Community College shall defer payment on receipt of a signed and acknowledged promissory note for the amount of the tuition, fees and required books and materials, with no interest charge, that is due and payable at the end of the deferral period. This deferment is available during any registration in which a veteran is awaiting Montgomery GI bill benefits. Pima Community College veteran deferment and book loans are available at all campus Student Services Centers.

### Degree Plans

Students applying for DVA educational benefits can only be certified for courses that apply to their program of study (or major). Eligible students should select a program of study prior to registration for classes. Not all programs of study are approved for DVA benefits. If you have questions about your program's eligibility, email [veterans@pima.edu](mailto:veterans@pima.edu)

All degree programs have a set number of credits needed to complete them. Students will not be certified for a program of study, or paid by the DVA, for courses that exceed the program's approved length. The DVA will pay only for required courses in approved programs. This same rule applies to certificate and vo-

cational certificate programs that 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

Students receiving General or Official Withdrawal “W” grades in any certified 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 also may 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 good 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 lack of success 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 their program of study 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, repayment of funds and/or delay of benefits.

## Veterans Services

A student who is a veteran, 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 Student Services Center.

## Additional Benefits

Students who are eligible for DVA educational benefits and have completed the enrollment certification process, also may 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 Student Services Center or the PCC Veterans Affairs 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 website 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 website, [www.pima.edu/foundation](http://www.pima.edu/foundation) or email [foundation@pima.edu](mailto:foundation@pima.edu).

### Foundation Officers, 2013

Greg Good, Chair  
 Gloria Bloomer, Chair-Elect  
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# Student Services and Student Life

## Student Services

All student services are available at the Student Services Centers on all six campuses.

### Admissions/Registration

Pima Community College 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 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 website at [www.pima.edu](http://www.pima.edu).

### Advising/Counseling

Advising staff 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 that 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

Students are required to take reading, writing, and mathematics or ESL assessments for appropriate placement in courses. For admission as a Degree Seeking student, students must score at an appropriate level as established by the College on the College's assessment examination(s). Exceptions to the assessment requirement are:

- You already have a college degree or certificate,
- You are enrolled only in noncredit, contract or dual enrollment courses or are non-degree seeking.

To take the Assessments, visit any campus Student Services Center. You can walk in during service hours at the Center of your choice and you do not need an appointment. Bring a photo ID and allow two to three hours to complete the assessments.

Sample assessment questions are available at [www.pima.edu/assessment](http://www.pima.edu/assessment) or can be purchased from the campus bookstore for a modest fee.

(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. GED testing is provided at Community, Desert Vista, East and Northwest campuses as well as Santa Rita High School (3951 S. Pantano Road, Tucson, AZ 85370).

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 website at [www.pima.bkstr.com](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 (College Police)

The PCC Department of Public Safety provides law enforcement, security and public service throughout the College District 24-hours a day, seven-days a week. The DPS mission is to provide a safe and secure environment for PCC 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; and on property within, or immediately adjacent to and accessible from the campus.

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) 206-2671. The report can also be found online at [www.pima.edu/dps/reports](http://www.pima.edu/dps/reports). Updates and important safety and security issues may be published in the following: 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 Regulations also are available online at [www.pima.edu/administrative-services/college-police/parking-traffic-regulations.html](http://www.pima.edu/administrative-services/college-police/parking-traffic-regulations.html).

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 Student Services Centers.

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

**Key:****CC** = Community Campus**DC** = Downtown Campus**DVC** = Desert Vista Campus**DMAFB** = Davis-Monthan AFB  
Education Center**EC** = East Campus**NWC** = Northwest Campus**SEC** = Southeast Education Center**WC** = West Campus

The Student Services 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 online assistance with résumé 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 Student Services Center. Tuition and fees must be paid in full by the published payment due dates. Failure to pay by the deadlines may result in the loss of registration or late fees.

Please Note: If you are unable to pay the required tuition, there may be financial options, such as a Payment Plan, available to you.

## 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, notetaking, reading and writing assistance, sign language interpreters, real-time transcribers, video-captioning, alternative formats for textbooks and other references, assistive technology, alternative testing services and community agency referrals.

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 in this section 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.

**Desert Vista Campus**

South Calle Santa Cruz, Tucson, AZ, 85709  
206-5151 (Voice/TTY)

**Downtown Campus**

1255 North Stone Ave., Tucson, AZ, 85709  
206-7286 (Voice/TTY)

**East Campus**

8181 East Irvington Road, Tucson, AZ, 85709  
206-7699 (Voice/TTY)

**Northwest Campus**

7600 North Shannon Road, Tucson, AZ, 85709  
206-2209 (Voice/TTY)

**West Campus (and services for Community Campus)**

2202 West Anklam Rd., Tucson, AZ, 85709  
206-6688 (Voice/TTY)

**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 Student Services Center to get started by reviewing eligibility criteria, deadlines, and application processes. For more information, please see the Financial Aid/ Scholarships section of this catalog, visit our website at [www.pima.edu](http://www.pima.edu) or call our financial aid hotline at 520-206-4950.

**Insurance**

Accident and sickness medical expense insurance may be purchased by students. Forms and information are available at each campus Student Services Center.

**International Student Services**

The International Students Services Office (ISSO), located at West Campus, was established to help international students 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, DVDs, audio books, online research databases, and the Internet. All libraries have staff available to answer reference questions and assist students in using library and research resources. Instructors may request library instruction for their courses. Resources are listed online at [www.pima.edu/current-students/library/](http://www.pima.edu/current-students/library/). Research databases can be accessed on or off campus. Ask a librarian for information about accessing library databases from off-campus. Library materials may be transferred

between campuses. Campus libraries also lend laptop computers, calculators and other electronic devices. Ask library staff at each campus for device availability and lending policies. The libraries also provide study and lounge areas.

**Orientation**

All new students attending college for the first time should complete a New Student Orientation. Before doing so, students must apply for admission and take the reading, writing, and math assessments. Visit [www.pima.edu/orientation](http://www.pima.edu/orientation) or contact any Student Services Center for more information.

**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 Non-Pedestrian Devices, available at all campus libraries and online at [www.pima.edu](http://www.pima.edu). 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 Student Services Center 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 Tucson. ID Cards can be obtained by paying the fee at the cashier's office and taking the receipt to the student ID area at any campus. Cards must be validated each term.

**Transcripts**

Unofficial transcripts may be obtained through MyPima and at any campus Student Services Center. Official Transcripts may be requested through MyPima, at any campus, center, or on our website



at [www.pima.edu](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 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 the campus Student Life office.

## Leadership and Student Government

Students have a voice in College functions through recognized campus student government associations and appropriate student groups and committees. Student government representatives also sit on various task forces and committees that make recommendations to the administration.

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

## 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 Vice President 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 bi-monthly 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. The workshop annually publishes SandScript. The SandScript contains literary pieces, including those from 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 participate (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 Student Services Center.

## 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 that 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, hal-

lucinogen, 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 the Student Services Center 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 to a four-year institution, prepare for job training, or continue their education in an area of special interest.

These classes are provided days, evenings, and weekends. Evening classes begin at 4:30 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 for five or six weeks; completing appropriate Express classes year-round for two years can lead to an associate degree.
- 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 via the Internet.
- 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.
- Web and Classroom – Students receive instruction in the classroom and via the Internet with reduced time in the classroom.
- Web Self-Paced – Students work via the Internet at their own pace with materials provided by College faculty via the Internet.

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

## Honors Program

The Honors Program provides students enriched learning opportunities and programming activities to foster academic and social development. It 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 to facilitate entry into Honors Programs at four-year colleges. The Honors Program features small class sizes, assistance for students seeking scholarships and awards, 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 and maintain a cumulative GPA of 3.5. The Honors 101 Colloquium (3 credits) is a required course in this 15-credit minimum.

### Admission Criteria

Details about the criteria to join the Honors Program, as well as program requirements and Honors contacts, are at [www.pima.edu/honors](http://www.pima.edu/honors). 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 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.

Students are responsible for determining the presence or absence of any barriers to professional licensure or certification outside of College awarded completion documents. If students have concerns about any non-educational barriers to professional licensure or certification, they are advised to seek academic advising to explore that possibility before beginning their course of study.

### 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. If a program has prerequisites they will be found in the program display, and the total credits required for each program include those needed to complete any prerequisites.

## 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 credit hours of the program requirements 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 more than 6 credit hours, including the AGEC-A, AGEC-B and AGEC-S, at least 6 credit hours of the program requirements must be earned at PCC. For certificates of 6 credits or less, all credits must be earned from PCC.
4. Have a minimum overall 2.0 grade point average (GPA) on a 4.0 grade point scale.
5. Complete courses given the following rules regarding grades:
  - a. A "C" grade or higher is required for general education and core courses, and for all courses in the Associate of General Studies degrees, transfer degrees (Associate of Arts, Associate of Business Administration, Associate of Fine Arts, and Associate of Science) and all AGECS.
  - b. "D" or "F" grades do not fulfill graduation requirements for any transfer degree (Associate of Arts, Associate of Business Administration, Associate of Fine Arts, and Associate of Science) or AGECS.

- c. A grade of "P" cannot be used for Arizona General Education Curriculum (AGEC) or any transfer degree (Associate of Arts, Associate of Business Administration, Associate of Fine Arts, and Associate of Science).
- d. A "D" grade may fulfill support course requirements only in certificates, the Associate of Applied Arts, and the Associate of Applied Science degrees, and only if those courses do not also meet general education requirements, or the program does not require a higher grade. See your program display.

## 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 annual 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.

### Preparation for General Education

To succeed in general education courses, students should have attained college-level preparedness in reading, writing and mathematics.

## 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 complete a Bachelor of Arts (BA), Bachelor of Fine Arts (BFA), or Bachelor of Science (BS), the Associate of Arts (AA), Associate of Business Administration (ABUS), Associate of Fine Arts (AFA), 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

	<b>General Education Credits Needed</b>
Associate of Arts (AA).....	35
Associate of Fine Arts (AFA).....	35
Associate of Business Administration (ABUS).....	35
Associate of Science (AS).....	35

### Not Intended for Transfer

	<b>General Education Credits Needed</b>
<b>Occupational Certificates:</b>	
Occupational Certificates of 30 or more credits.....	6
Occupational Certificates below 30 credits .....	0
<b>Occupational Degrees:</b>	
Associate of Applied Arts (AAA).....	19-21
Associate of Applied Science (AAS).....	19-21
Associate of General Studies: .....	19-21

## 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)

### General Education Requirements for Certificates for Direct Employment

#### (30 Credit Hours or more)

Some programs require specific courses for general education. See program displays.

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:

- GTW 101
- JRN 101
- OAP 151
- SPE 102
- SPE 120
- WRT 101 (or WRT 107)†
- WRT 154

† Suggested for students who may transfer.

#### 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. Scoring 32 or above on the Compass Algebra test or the Asset Elementary Algebra test
- OR
2. Completing MAT 092 with a "C" or better\*\*
- OR
3. Completing Module 26 in MAT 089\*\*
- OR
4. Completing 1-3 credits with a "C" or better from the Mathematics Category listed below

Note: Students who meet the Mathematics Competency Requirement by assessment, by completing MAT 092 or Module 26 in MAT 089, or by completing Mathematics Category course work with fewer than 3 credits are still required to

complete a total of at least 3 credits from the Analysis and Critical Thinking Requirement.

##### Mathematics Category

BUS 151 (if taken after Spring 2008)

GTM 105

TEC 113

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

##### Science Category

MAC 275

PHY 101\*

Any course from the AGECE Biological/Physical Science List†

##### Critical Thinking Category

PHI 120

REA 112

STU 200

TEC 101

† Suggested for students who may transfer.

\* No longer offered, but will fulfill requirement.

\*\* Neither MAT 092 nor MAT 089 apply toward the 6 credits required in this category, but do they meet the math competency.

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

Courses may not be used to complete more than one category. Some programs require specific courses for general education. See program displays.

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

#### Special Requirement

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

#### Communication Requirement (6 credits)

Choose one of the following pairs:

GTW 101 and SPE 120

JRN 101 and SPE 120

OAP 151 and OAP 251

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)\*

\* Suggested for students who may transfer.



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

Complete 6 credit hours from the categories listed below.

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

Note: The Mathematics Competency Requirement must be met.

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

The mathematics competency requirement can be met by:

1. Scoring 32 or above on the Compass Algebra test or the Asset Elementary Algebra test

OR

2. Completing MAT 092 with a "C" or better\*\*

OR

3. Completing Module 26 in MAT 089\*\*

OR

4. Completing 1-3 credits with a "C" or better from the Mathematics Category listed below

Note: Students who meet the Mathematics Competency Requirement by assessment, by completing MAT 092 or Module 26 in MAT 089, or by completing Mathematics Category course work with fewer than 3 credits are still required to complete a total of at least 6 credits from the Analysis and Critical Thinking Requirement.

**Mathematics Category**

BUS 151 (if taken after Spring 2008)

GTM 105

TEC 113

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

**Science Category**

MAC 275

PHY 101\*

Any course from the AGEC Biological/Physical Science List†

**Critical Thinking Category**

PHI 120

REA 112

STU 200

TEC 101

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

Courses must be completed from two of the following categories.

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: ANT 253, 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

† Suggested for students who may transfer.

\* No longer offered but will fulfill requirement.

\*\* Neither MAT 092 nor MAT 089 apply toward the 6 credits required in this category, but do they meet the math competency.

**General Education Requirements for Transfer Programs**

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

- Associate of Arts Degree (AA)
- Associate of Fine Arts (AFA)
- 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 (11 courses) that, when completed, can be transferred 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. *At least six credits of AGEC coursework must be completed at Pima Community College to earn an AGEC at Pima.* See an advisor or counselor for more information.

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

**AGEC-A:**

The AGEC-A may be applied to universities' Bachelor of Arts 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 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' Bachelor of 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.

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, science,

and/or other requirement courses defined within that new degree program. However, the other general education categorical requirements of the degree are fulfilled by the AGEC-A.

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

- The student cannot complete an AA, AFA, 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

The same course may not be used to complete more than one category, but it may meet both a category requirement and a Special Requirement. Request an AGEC checklist from an advisor for more detailed information. **Per Arizona statewide policies, no course substitutions are allowed in the AGEC.**

AGEC-A Categorical Requirements	Minimum Credit Hours
English Composition (2 courses)..... The combination of WRT 101 (or 107) and 102 (or 108).	6
Humanities and Fine Arts (2 courses)..... One course from the Art list and one course from the Humanities/Historical Perspectives list.	6
Biological & Physical Sciences (2 courses) ..... Any two courses and their labs from the Biological & Physical Sciences list.	8
Mathematics (1 course)..... MAT 142, MAT 144, MAT 151, or any MAT course above 151.	3
Social & Behavioral Sciences (2 courses) ..... Any two courses from two different prefixes in this category.	6
Other Requirements (2 courses) ..... Courses from the Other Requirement Options, and/or one additional Humanities and Fine Arts, and/or one additional Social & Behavioral Science course.	6
<b>Total AGEC-A General Education Credits Required:</b> .....	<b>35</b>

AGEC-B Categorical Requirements	Minimum Credit Hours
See the Associate Degree in Business Administration (ABUS) for more information.	
English Composition (2 courses)..... The combination of WRT 101 (or 107) and 102 (or 108).	6
Humanities and Fine Arts (2 courses)..... One course from the Art list and one course from the Humanities/Historical Perspectives list.	6
Biological & Physical Sciences (2 courses) ..... Any two courses and their labs from the Biological & Physical Sciences list.	8
Mathematics (1 course)..... MAT 212 or MAT 220.	3
Social & Behavioral Sciences (2 courses) ..... Two courses from two different prefixes in this category. Recommended ECN 201 or 202 and one non-ECN course.	6
Other Requirements (2 courses) ..... CIS 100 and either MAT 172 or BUS 277 (if completing MAT 212 for the math requirement) or MAT 231 (if completing MAT 220 for the math requirement).	6
<b>Total AGEC-B General Education Credits Required:</b> .....	<b>35</b>

AGEC-S Categorical Requirements	Minimum Credit Hours
English Composition (2 courses)..... The combination of WRT 101 (or 107) and 102 (or 108).	6
Humanities and Fine Arts (2 courses)..... One course from the Art list and one course from the Humanities/Historical Perspectives list.	6
Biological & Physical Sciences..... The combination of CHM 151&152 and their labs or PHY 210&216 and their labs.	10
Mathematics (1 course)..... MAT 220 or above.	3-5

Social & Behavioral Sciences (2 courses) .....	6
Two courses from two different prefixes in this category.	
Other Requirements (2 courses) .....	6
MAT courses above 220 and/or Science courses from the Biological and Physical Sciences list.	
<b>Total AGEC-S General Education Credits Required: .....</b>	<b>37-39</b>

### 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 awareness(G)

AGEC special requirements can be completed in one, two or three courses. Look for the AGEC special requirement code (I, C, and G) in the course lists below. To avoid exceeding the 35 credits required for the AGEC; the student should choose some courses that satisfy both the AGEC special requirements and the category requirements. For example, HUM 253 fulfills a category requirement of Humanities and Fine Arts and the three AGEC 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 or WRT 107	Writing I SUN# ENG 1101 Writing I for Non-Native Speakers of English	3	
WRT 102 or WRT 108	Writing II SUN# ENG 1102 Writing II for Non-Native Speakers of English	3	
ZTR WR	AGEC Transfer Writing Equivalent	3	

### AGEC Categorical Requirement: Humanities and Fine Arts (6 credits)

Complete one course from the Art list and one course from the Humanities list.

#### Art List:

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ART 100	Basic Design	3	
ART 105	Exploring Art and Visual Studies	3	G
ART 106	Survey of Painting Materials and Techniques (was ART 201)	3	
ART 110	Drawing I SUN# ART 1111	3	
ART 115	Color and Composition	3	
ART 120	Sculptural Design	3	
DAR 250	Computer 2D Animation: Adobe After Effects	4	
DAR 251	Computer 3D Animation: Maya	4	
DAR 252	Digital Multimedia Design I: Flash	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	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	3	

**Art List:** *(continued)*

Course Number	Course Title	Credit Hours	AGEC Special Requirement
MUS 121* Concert Band II		3	
MUS 125†	Structure of Music I	3	
MUS 127†	Aural Perception I	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††	Introduction 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 SUN# ART 1101	3	I,G
ART 131	Art and Culture: Gothic through Modern Periods SUN# ART 1102	3	I,G
ART 134*	Arts of Diverse Cultures	3	G
ART 135††	Pre-Columbian Art	3	
HIS 101	Introduction to Western Civilization I	3	I,G
HIS 102	Introduction 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	History of Interior Architecture and Furniture from 1900–Present	3	G

**Humanities List:** *(continued)*

Course Number	Course Title	Credit Hours	AGEC Special Requirement
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 263	Postmodern 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 SUN# PHI 1101	3	
PHI 122	God, Mind, and Matter	3	
PHI 123	Philosophical Foundations of Science	3	
PHI 130	Intro. Studies in Ethics & Social Philosophy SUN# PHI 1105	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	
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.

†† This course is cross-listed with (the same as) another course – only one will apply to meet AGEC, degree or certificate requirements. The course description will indicate the cross-listed course.

**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 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	

**AGEC Categorical Requirement: Biological and Physical Sciences: (continued)**

Course Number	Course Title	Credit Hours	AGEC Special Requirement
BIO 115IN	Wildlife of North America	4	
BIO 121IN	Current Issues in Human Biology	4	
BIO 127IN††	Human Nutrition and Biology	4	I
BIO 135IN	Genetics, Biotechnology and Human Affairs	4	
BIO 156IN	Introductory Biology for Allied Health	4	
BIO 160IN	Introduction to Human Anatomy and Physiology	4	
BIO 181IN	General Biology (Majors) I SUN# BIO 1181	4	
BIO 182IN	General Biology (Majors) II SUN# BIO 1182	4	
BIO 183IN	Marine Biology	4	
BIO 184IN	Plant Biology	4	
BIO 187IN	Introduction to Biological Research	4	
BIO 201IN	Human Anatomy/Physiology I SUN# BIO 2201	4	
BIO 202IN	Human Anatomy/Physiology II SUN# BIO 2202	4	
BIO 205IN	Microbiology SUN# BIO 2205	4	
CHM 121/121LB or CHM 121IN	Chemistry and Society I	4	
CHM 122/122LB or CHM 122IN*	Chemistry and Society II	4	
CHM 125/125LB or CHM 125IN	Consumer Chemistry	4	
CHM 130/130LB or CHM 130IN	Fundamental Chemistry SUN# CHM 1130	5	
CHM 140/140LB or CHM 140IN	Fundamental Organic and Biochemistry SUN# CHM 2230	5	
CHM 151/151LB or CHM 151IN	General Chemistry I SUN# CHM 1151	5	
CHM 152/152LB or CHM 152IN	General Chemistry II SUN# CHM 1152	5	
CHM 235/235LB or CHM 235IN	General Organic Chemistry I SUN# CHM 2235	5	
CHM 236/236LB or CHM 236IN	General Organic Chemistry II SUN# CHM 2236	5	
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	Physical Geology SUN# GLG 1101	4	
GLG 102IN	Historical Geology	4	
GLG 110IN	Geological Disasters and Environmental Geology	4	
GLG 140IN	Introduction to Oceanography	4	
PHY 115/115LB*	Physical Science	4	
PHY 121/121LB or PHY 121IN	Introductory Physics I SUN# PHY 1111	5	
PHY 122/122LB or PHY 122IN	Introductory Physics II SUN# PHY 1112	5	
PHY 210/210LB or PHY 210IN	Introductory Mechanics	5	
PHY 216/216LB or PHY 216IN	Introductory Electricity and Magnetism SUN# PHY 1131	5	
PHY 221/221LB	Introduction to Waves and Heat	4	
ZTR BP	AGEC Science Equivalent	4	
ZTR BPI	AGEC Science Equivalent	4	I
ZTR BPC	AGEC Science Equivalent	4	C
ZTR BPG	AGEC Science Equivalent	4	G
ZTR BPIC	AGEC Science Equivalent	4	I,C
ZTR BPIG	AGEC Science Equivalent	4	I,G
ZTR BPCG	AGEC Science Equivalent	4	C,G
ZTR BPICG	AGEC Science Equivalent	4	I,C,G

\* No longer offered, but will fulfill requirement.

†† This course is cross-listed with (the same as) another course – only one will apply to meet AGEC, degree or certificate requirements. The course description will indicate the cross-listed course.

NOTE: The University of Arizona Natural Science General Education courses (NATS or science courses numbered 170A, B or C) courses do not fulfill Biological and Physical Science requirements.

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

Complete three credits. The AGECE-A requires MAT 142, 144, 151 or above. The AGECE-B requires MAT 212 or 220. 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 SUN# MAT 1151	4	
MAT 167	Introductory Statistics	3	
MAT 172	Finite Mathematics	3	
MAT 182	Trigonometry	3	
MAT 187	Precalculus	5	
MAT 212	Topics in Calculus	3	
MAT 220	Calculus I SUN# MAT 2220	5	
MAT 227	Discrete Mathematics in Computer Science SUN# MAT 2227	4	
MAT 231	Calculus II SUN# MAT 2230	4	
MAT 241	Calculus III SUN# MAT 2241	4	
MAT 252	Introduction to Linear Algebra	3	
MAT 262	Differential Equations SUN# MAT 2262	3	

\*Course has a business emphasis

**AGEC Categorical Requirement: Social and Behavioral Sciences (6 credits)**

Complete courses in two subject areas (at least two course prefixes).

Course Number	Course Title	Credit Hours	AGEC Special Requirement
AIS 101	Introduction to American Indian Studies I	3	
AJS 225	Criminology	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 148++	History of Indians of North America	3	C, G
ANT 150++*	African-American History and Peoples	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
ECE 107	Human Development and Relations	3	
ECN 200	Basic Economic Principles	3	
ECN 201	Microeconomic Principles SUN# ECN 2202	3	
ECN 202	Macroeconomic Principles SUN# ECN 2201	3	
GEO 103	Cultural Geography	3	G
GEO 104	World Regional Geography	3	G
GEO 250	Introduction to Medical Geography	3	G
HIS 101	Introduction to Western Civilization I	3	I,G
HIS 102	Introduction to Western Civilization II	3	I,G
HIS 105	Introduction 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

**AGEC Categorical Requirement: Social and Behavioral Sciences** *(continued)*

<b>Course Number</b>	<b>Course Title</b>	<b>Credit Hours</b>	<b>AGEC Special Requirement</b>
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 and 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 SUN# PHI 1101	3	
PHI 130	Intro. Studies in Ethics & Social Philosophy SUN# PHI 1105	3	
PHI 140††	Philosophy of Religion	3	
POS 100	Introduction to Politics	3	
POS 201	American National Government and Politics SUN# POS 1110	3	C
POS 202	Intro to International Relations SUN# POS 1120	3	G
POS 203	Introduction to Political Ideas	3	
POS 204	Intro to Comparative Politics SUN# POS 2204	3	C,G
POS 210	National and State Constitutions	3	
POS 231	American State & Local Governments & Politics SUN# POS 1130	3	C
POS 240	Understanding Terrorism	3	
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 240	Developmental Psychology	3	
PSY 250	Introduction to Social Psychology	3	
PSY 265	Normal Personality	3	
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 SUN# SOC 1101	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 166	Social Gerontology	3	
SOC 201	Race, Ethnicity, Minority Groups & Social Justice SUN# SOC 2215	3	C
SOC 203	Sociology of Utopia	3	I,G
SOC 204	Gender Identities, Interactions, 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	
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.

†† This course is cross-listed with (the same as) another course – only one will apply to meet AGECE, degree or certificate requirements. The course description will indicate the cross-listed course.



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

Complete all six credits from the courses listed below, or include up to 3 credits from Humanities and Fine Arts and/or 3 credits from Social and Behavioral Sciences.

**a) Oral Communication**

Course Number	Course Title	Credit Hours	AGEC Special Requirement
SPE 102	Introduction to Speech Communication SUN# COM 1100	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 SUN# CIS 1120	3	
CIS 140*	FORTTRAN Programming	3	
CIS 160*	Cobol Programming	3	
FSN 154††	Nutrition	3	
Math	Any Mathematics course numbered 142,144 or 151 and above		
PHI 120	Introduction to Logic SUN# PHI 1103	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.

†† This course is cross-listed with (the same as) another course – only one will apply to meet AGEC, degree or certificate requirements. The course description will indicate the cross-listed course.

**c) Second Language:**

<b>Course Number</b>	<b>Course Title</b>	<b>Credit Hours</b>	<b>AGEC Special Requirement</b>
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 SUN# CHI 1101	5	
CHI 102	Elementary Chinese (Mandarin) II SUN# CHI 1102	5	
CHI 201	Intermediate Chinese (Mandarin) I SUN# CHI2201	5	G
CHI 202	Intermediate Chinese (Mandarin) II SUN# CHI 2202	5	G
FRE 101	Elementary French I SUN# FRE 1101	4	
FRE 102	Elementary French II SUN# FRE 1102	4	
FRE 201	Intermediate French I SUN# FRE 2201	4	G
FRE 202	Intermediate French II SUN # FRE 2202	4	G
GER 101	Elementary German I SUN# GER 1101	4	
GER 102	Elementary German II SUN# GER 1102	4	
GER 201	Intermediate German I SUN# GER 2201	4	G
GER 202	Intermediate German II SUN# GER 2202	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 SUN# ITA 1101	4	
ITA 102	Elementary Italian II SUN# ITA 1101	4	
ITA 201	Intermediate Italian I SUN# ITA 2201	4	G
ITA 202	Intermediate Italian II SUN# ITA 2202	4	G
JPN 101	Elementary Japanese SUN# JPN 1101	5	
JPN 102	Elementary Japanese II SUN# JPN 1102	5	
JPN 201	Intermediate Japanese I SUN# JPN 2201	5	G
JPN 202	Intermediate Japanese II SUN# JPN 2202	5	G
LAT 101	Elementary Latin I SUN# LAT 1101	4	
LAT 102	Elementary Latin II SUN# LAT 1102	4	
LAT 201*	Intermediate Latin I SUN# LAT 2201	4	
LAT 202*	Intermediate Latin II SUN# LAT 2202	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 SUN# RUS 1101	4	
RUS 102	Elementary Russian II SUN# RUS 1102	4	
RUS 201	Intermediate Russian I SUN# RUS 2201	4	G
RUS 202	Intermediate Russian II SUN# RUS 2202	4	G
SLG 101	American Sign Language I	4	C
SLG 102	American Sign Language II	4	C
SLG 201	American Sign Language III	4	C
SLG 202	American Sign Language IV	4	C
SPA 101	Elementary Spanish I SUN# SPA 1101	4	
SPA 102	Elementary Spanish II SUN# SPA 1102	4	
SPA 103	Beginning Spanish for Spanish Speakers	4	G
SPA 104*	Spanish for Spanish Speakers II	4	G
SPA 201	Intermediate Spanish I SUN# SPA 2201	4	G
SPA 202	Intermediate Spanish II SUN# SPA 2202	4	G
SPA 203	Writing and Oral Skills for Spanish Speakers	4	G
SPA 253	Intermediate Spanish for Spanish Speakers	4	G
SPA 254	Intermediate Grammar and Writing for Spanish Speakers	4	G

**c) Second Language: (continued)**

Course Number	Course Title	Credit Hours	AGEC Special Requirement
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 SUN# ART 1101	3	I,G
ART 131	Art and Culture: Late Gothic to Modern Periods SUN# ART 1102	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
GEO 103	Cultural Geography	3	G
GEO 104	World Regional Geography	3	G
GEO 250	Introduction to Medical Geography	3	G
HIS 101	Introduction to Western Civilization I	3	I,G
HIS 102	Introduction to Western Civilization II	3	I,G
HIS 105	Introduction 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
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 and People of Africa	3	G
HIS 180	Women in Western History	3	C

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

<b>Course Number</b>	<b>Course Title</b>	<b>Credit Hours</b>	<b>AGEC Special Requirement</b>
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 20th 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–Present	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 201	American National Government and Politics SUN# POS 1110	3	C
POS 202	Introduction to International Relations SUN# POS 1120	3	G
POS 204	Introduction to Comparative Politics SUN# SOC 2204	3	C,G
POS 230*	Minority Groups and the Political Process	3	C
POS 231*	American State & Local Governments & Politics SUN# SOC 1130	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 SUN# SOC 1101	3	C
SOC 103*	Explorations in Prejudice	3	C
SOC 110	Introduction to Cities and Global Society	3	G
SOC 120	Current Social Problems	3	C,G
SOC 201	Race, Ethnicity, Minority Groups & Social Justice SUN# SOC 2215	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.

†† This course is cross-listed with (the same as) another course – only one will apply to meet AGEC, degree or certificate requirements. The course description will indicate the cross-listed course.

# 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, the program code, the major code, and any concentration codes associated with the program. These codes identify the student's program of study in their student record and in MyDegreePlan. If a student is uncertain about which codes 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 introductory course(s) for the certificate or degree. Check the Schedule of Classes for the courses offered on each campus or 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 or 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 at least 60 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 at least 60 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 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:

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

### **Campus legend:**

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

## Occupational Programs

Program	Award	Program Code	Major Code	Concentration Code	Lead Campus*
<b>Accounting</b>					
Accounting	CERT	CRTACCOUNTIN	ACT		WC
Accounting	AAS	AASACCOUNTIN	ACC		WC
<b>Administration of Justice Studies</b>					
Administration of Justice Studies	AAS	AASADMINJUST	AJS		EC
<b>Applied Arts</b>					
Applied Arts	AAA	AAAAPPLDARTS	APT		WC
<b>Archaeology</b>					
Field Archaeology	CERT	CRTFLDARCHEO	ARF		WC
<u>Concentrations:</u>					
Field and Lab Fundamentals				ARCL	
Field Methods				ARCM	
Geospatial Information Studies & Technology				ARCC	
Southwestern Cultures				ARCS	
<b>Automotive Technology</b>					
Automotive Mechanics	CERT	CRTAUTOMECHS	AUM		DC
Automotive Technology	AAS	AASAUTOTECHN	AUT		DC
<b>Aviation Technology</b>					
Advanced Aviation Technology	CERT	CRTAVIATIONA	AVA		DV
<u>Concentrations:</u>					
General Mechanics				AVMG	
Airframe Mechanics				AVMF	
Powerplant				AVMP	
Aviation Structural Repair				AVMS	
Aviation Technology	AAS	AASAVIATION	AVM		DV
<u>Concentrations:</u>					
Airframe and Powerplant				AVMA	
Structural Repair				AVMS	
Avionics Technician				AVMT	
Avionics Technician	CERT	CRTAVN	AVN		DV
<b>Behavioral Health Services</b>					
Behavioral Health Services (Basic)	CERT	CRTBHS	BHS		DV
<b>Biotechnology</b>					
Biotechnology	CERT	CRTBIOTECH	BTE		WC
<b>Building and Construction Technologies</b>					
Basic Building & Construction Technologies	CERT	CRTBLDGCON-B	BCB		DC
Advanced Building & Construction Technologies	CERT	CRTBLDGCON-A	BCA		DC
<u>Concentrations:</u>					
Carpentry				BCTC	
Electrical				BCTE	
Facilities Maintenance				BCTF	
Heating, Ventilation, Air Conditioning, & Refrigeration (HVAC-R)				BCTH	
Plumbing				BCTP	
Building & Construction Technologies	AAS	AASBLDGCONST	BCT		DC
<u>Concentrations:</u>					
Building Management				BCTB	
Cabinetmaking				BCTK	
Carpentry				BCTC	
Construction Management				BCTM	

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\*\* Special Admissions Requirements—See an advisor

## Occupational Programs (continued)

Program	Award	Program Code	Major Code	Concentration Code	Lead Campus*
<b>Building &amp; Construction Technologies (continued)</b>					
Electrical				BCTE	
Facilities Maintenance				BCTF	
Solar Installer				BCTI	
Heating, Ventilation, Air Conditioning, & Refrigeration (HVAC-R)				BCTH	
Plumbing				BCTP	
Cabinetmaking	CERT	CRTCМК	CMK		DC
Home Maintenance and Repair					
Minor Home Improvements	CERT	CRTMHI	MHI		DC
Limited Remodeling and Repair	CERT	CRTLRR	LRR		DC
General Residential Contractor	CERT	CRTGRC	GRC		DC
Solar Installer	CERT	CRTSIC	SIC		DC
<b>Business</b>					
Basic Business	CERT	CRTBUSINES-B	BUB		EC
Advanced Business	CERT	CRTBUSINES-A	BUA		EC
Business	AAS	AASBUSINESS	BUS		EC
Concentrations:					
Marketing				BUSK	
Management				BUSM	
Tourism				BUST	
Customer Service Management	CERT	CRTCSV	CSV		DC
Fashion Consumer Sciences	CERT	CRTBFA	BFA		DC
Fashion Consumer Sciences	AAS	AASBFM	BFM		DC
Logistics and Supply Chain Management (Basic)	CERT	CRTLGC	LGC		EC
Logistics and Supply Chain Management (Advanced)	CERT	CRTLGV	LGV		EC
Logistics and Supply Chain Management	AAS	AASLGM	LGM		EC
Retail Management	CERT	CRTBFR	BFR		DC
<b>Child Development Associate</b>					
See Education					
<b>Clinical Research Trial Coordinator</b>					
Clinical Research Coordinator	AAS	AASCTC	CRC		NW
Clinical Research Coordinator	CERT	CRTCTC	CTC		NW
<b>Computer Aided Drafting Technology</b>					
Computer Aided Drafting, Basic	CERT	CRTCONDRFT-B	CAB		DC
Computer Aided Drafting, Advanced	CERT	CRTCONDRFT-A	CAA		DC
Computer Aided Drafting	AAS	AASELECMECHN	CAD		DC
Concentrations:					
Mechanical/Electro-Mechanical Construction				DFTA	
Integrated Circuit Layout Design				DFTC	
Integrated Circuit Layout Design				DFTI	
Integrated Circuit Layout Design	CERT	CRTICD	ICD		
<b>Computer Information Systems</b>					
Computer Programmer Specialist	CERT	CRTCMPPRGSP	CSG		WC
Concentrations:					
Programming in "C"				CSPC	
Programming in Visual Basic				CSPV	
Programming for the Web				CSPW	
Computer Programmer/Analyst	AAS	AASCMPPRGANL	CSP		WC
Systems Administration/Networking	CERT	CRTNETWRKADM	CSD		WC
Concentrations:					
Administrator				CSNA	

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\*\* Special Admissions Requirements—See an advisor



## Occupational Programs (continued)

Program	Award	Program Code	Major Code	Concentration Code	Lead Campus*
<b>Systems Administration/Networking (continued)</b>					
CISCO				CSNC	
Microsoft				CSNM	
Linux				CSNX	
Systems Administration/Networking	AAS	AASCOMPSYSAD	CSN		WC
<u>Concentrations:</u>					
Administrator				CSNA	
Cyber Security				CSNY	
<b>Computer Software Applications</b>					
Computer Software Applications Assistant	CERT	CRTCOMPAPPAD	CST		DC
<b>Crime Scene Management</b>					
See Forensics and Crime Scene Technology					
<b>Culinary Arts</b>					
Culinary Arts	CERT	CRTCULNRYART	RCC		DV
Culinary Arts	AAS	AASCULNRYART	RCF		DV
<b>Dental Studies</b>					
Dental Assisting Education	CERT	Special**			WC
Dental Hygiene	AAS	Special**			WC
Dental Laboratory Technology					
Complete Dentures Technologist	CERT	Special**			WC
Dental Ceramics Technologist	CERT	Special**			WC
Fixed Bridgework Technologist	CERT	Special**			WC
Partial Dentures Technologist	CERT	Special**			WC
Dental Laboratory Technology	AAS	Special**			WC
<b>Digital Arts</b>					
Digital Arts	CERT	CRTCOMMGRAPH	DAC		WC
Digital Arts	AAS	AASCOMMGRAPH	DAR		WC
<u>Concentrations:</u>					
Design				DARD	
Illustration				DARI	
Multimedia				DARM	
Web Design				DARW	
Digital Arts	CERA	CRDDAR	DAP		WC
Digital and Film Arts	CERT	CRTDIGIFILM	MDF		WC
<u>Concentrations:</u>					
Cinematography				MDFC	
Digital Video Production				MDFD	
Sound Design				MDFS	
Animation				M DFA	
Digital and Film Arts	AAS	AASDIGIFILM	MEF		WC
Digital and Film Arts – Animation	AAS	AASANIMATION	ANM		WC
Digital Game & Simulation	AAS	AASDAG	DAG		WC
<u>Concentrations:</u>					
Digital Animation and Production				DAGA	
Digital Programming				DAGP	
<b>Direct Care Professional</b>					
Basic Direct Care Professional	CERT	CRTDCP	DCP		NW

\* 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)

Program	Award	Program Code	Major Code	Concentration Code	Lead Campus*
<b>Education</b>					
<b>Early Childhood Education and Child Development Associate</b>					
Basic Early Childhood Studies	CERT	CRTECB	ECB		DV
<u>Concentrations:</u> Child Development Associate Credential Preparation			ECBC		
Early Childhood Foundations				ECBF	
Advanced Early Childhood Studies	CERT	CRTECA	ECA		DV
Early Childhood Studies	AAS	AASECS	ECS		DV
Early Childhood Endorsement Birth through Age 8	CERA	CRDECE	ECK		DV
<b>Teacher Education</b>					
Teacher Certification Elementary or Secondary	CERA	Special**			CC
<u>Concentrations:</u> Elementary Certification Secondary Certification					
Special Education Cross-Categorical Certification	CERA	Special**			CC
Special Education Cross-Categorical Certification for Certified Teachers	CERA	Special**			CC
Education Endorsement - ESL	CERA	CRDENDORSEA	EDE		CC
Education Endorsement - Middle School	CERA	CRDENDORSEB	EDM		CC
Structured English Immersion	CERA	CRDESE	ESE		
<b>Educational Technology</b>					
Basic Educational Technology	CERT	CRTINTEDUTEC	ETB		CC
<b>Emergency Medical Technology</b>					
Basic Emergency Medical Technology	CERT	CRTEMEDTEC-B	EMS		EC
EMT Paramedic	AAS	AASEMD	EMD		
<b>Fashion Design</b>					
Fashion Design	CERT	CRTFDC	FDC		WC
Also See Applied Arts, Art Electives list					
<b>Fire Science</b>					
Fire Science	CERT	CRTFIRESCIEN	FSI		CC
Fire and Emergency Services Higher Education (FESHE)	AAS	AASFIRESCIEN	FSC		CC
<u>Concentrations:</u> Fire and Emergency Service Higher Education (FESHE) Vocational Academy			FSCF FSCV		
<b>Fitness and Sport Sciences</b>					
Coaching	CERT	CRTCOACHING	FSG		WC
Fitness Professional	CERT	CRTFITNESS	FSP		WC
<b>Forensics and Crime Scene Technology</b>					
Crime Scene Management	CERT	CRTFORENSICS	CSM		CC
<b>Fraud Examination</b>					
Fraud Examination	CERT	CRTACF	ACF		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)

Program	Award	Program Code	Major Code	Concentration Code	Lead Campus*
<b>Health Information Management</b>					
Health Information Technology	AAS	AASOAH	OAH		
Health Information Technology	CERT	CRTOAH	OAM		DC
<u>Concentrations:</u>					
Medical Billing and Coding				OAHB	
Medical Front Office Support				OAHF	
Health Information Management				OAHM	
(see also Office and Administrative Professions)					
<b>Hotel and Restaurant Management</b>					
Hotel and Restaurant Management	CERT	CRTHRM	HRC		NW
<b>Human Resources</b>					
Human Resources	CERT	CRTHUMANRES	HRS		CC
<b>Interpreter Training Program</b>					
Interpreter Training Program	AAA	AAAINTPTRAIN	ITP		WC
<b>Law Enforcement Academy</b>					
Law Enforcement Academy	CERT	CRTLWY	LWY		CC
Law Enforcement Academy	AAS	AASLEA	LEA		
<b>Logistics and Supply Chain Management</b>					
See Business					
<b>Legal Assistant</b>					
See Paralegal					
<b>Machine Tool Technology</b>					
Machine Tool Technology	CERT	CRTMACHNTOOL	MCT		DC
<u>Concentrations:</u>					
Computer Numerical Control (CNC) Machinist				MACC	
Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Machinist				MACH	
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	MAC		DC
<u>Concentrations:</u>					
Computer Numerical Control (CNC) Machinist				MACC	
Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Machinist				MACH	
Electrical Discharge Machine (EDM) Operator				MACE	
Mechanical Inspector				MACI	
Manual Machinist				MACM	
Machine Operator				MACO	
Computer Numerical Control (CNC) Programmer				MACP	
<b>Massage</b>					
See Therapeutic Massage					
<b>Medical Assistant</b>					
Medical Assistant	CERT	CRTHPM	HPM		
<u>Concentrations:</u>					
Administrative				HPMA	
Clinical				HPMC	

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\*\* Special Admissions Requirements—See an advisor

## Occupational Programs (continued)

Program	Award	Program Code	Major Code	Concentration Code	Lead Campus*
<b>Medical Laboratory Technician</b>					
Medical Laboratory Technician	AAS	AASMLT	MLT		WC
<b>Nursing</b>					
Associate Degree Nursing	AAS	Special**			WC
Practical Nursing	CERT	Special**			WC
<b>Office and Administrative Professions</b>					
Office Assistant	CERT	CRTADMINAIDE	OAA		DC
Administrative Assistant	CERT	CRTADMINSPEC	OAS		DC
Executive Assistant	AAS	AASOAG	OAG		DC
<b>Paralegal</b>					
Paralegal	AAS	AASLEGALASST	LAS		DC
Paralegal	CERA	CRDLEGALASST	LAP		DC
<b>Pharmacy Technology</b>					
Pharmacy Technology	CERT	Special**			EC
Pharmacy Technology	AAS	Special**			EC
<b>Phlebotomy</b>					
Phlebotomy	CERT	CRTPHB	PHB		DV
<b>Radiologic Technology</b>					
Radiologic Technology	AAS	Special**			WC
<b>Respiratory Therapist</b>					
Respiratory Care	AAS	Special**			WC
<b>Social Services</b>					
Social Services	AAS	AASSOCIALSRV	SSE		WC
Social Services Substance Abuse Specialty	AAS	AASSUBSTABUS	SSS		WC
Social Services Youth Services Specialty	AAS	AASYOUTHSERV	SSY		WC
Basic Social Services	CERT	CRTSOCIALSRV	SSC		WC
Social Services Substance Abuse Specialty	CERT	CRTSUBSTABUS	SSA		WC
Social Services Domestic Violence Intervention	CERT	CRTDOMESVIOL	SSD		WC
Social Services Community Health Advisor	CERT	CRTHEALTHADV	CHA		WC
<b>Surface Mining Technology</b>					
Basic Surface Mining Technology	CERT	CRTSMB	SMB		DV
Advanced Surface Mining Technology	CERT	CRTSMA	SMA		DV
Surface Mining Technology	AAS	AASSMT	SMT		DV
<b>Technical Writing &amp; Communication</b>					
Technical Writing & Communication	CERA	CRDTWC	TWC		DC
<b>Technology</b>					
Electronic Assembly Technology	CERT	CRTTECHNOLGY	TEE		DV
Technology	AAS	AASTEK	TEK		
<u>Concentrations:</u>					
Electronic				TEKE	
IT Specialist				TEKI	
Optics				TEKO	

\* 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)

Program	Award	Program Code	Major Code	Concentration Code	Lead Campus*
<b>Therapeutic Massage</b>					
Therapeutic Massage	CERT	CRTTMA	TMC		NW
Therapeutic Massage	AAS	AASTMA	TMA		NW
<b>Tourism</b>					
See Tourism concentration in Business					
<b>Translation and Interpretation Studies</b>					
Translation Studies	CERT	CRTRANSLATE	TRS		DC
Translation & Interpretation Studies	AAS	AASTRANSLATE	TRI		DC
<b>Truck Driver Training</b>					
Class A Vehicle Driver	CERT	CRTRUCKCLSA	TDA		CC
<b>Veterinary Science</b>					
Veterinary Practice Assistant	CERT	CRTVEP	VEP		EC
Veterinary Technician	AAS	AASVETTECH	VET		EC
<b>Welding</b>					
Welding and Fabrication	AAS	AASWELDING	WLD		DC

## General Studies

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

## Transfer Programs

Program	Award	Program Code	Major Code	Concentration Code
<b>Administration of Justice Studies</b>				
	AA	AOAADMINJUST	AJT	
<b>American Indian Studies</b>				
	AA	AOAAMRINDSTU	AIS	
<b>Anthropology</b>				
<i>Concentrations:</i> Anthropology Archaeology	AA	AOAANTHROPOL	ANT	AANT AARC
<b>Arizona General Education Curriculum (AGEC)</b> CERT				
AGEC-A (Liberal Arts) AGEC-B (Business Administration) AGEC-S (Science/Technology)			Use program code of Transfer degree	
<b>Arts, Fine</b>				
Associate of Fine Arts Degree, Visual and Performing Arts <i>Concentrations:</i> Dance Music Theatre Visual Arts	AFA	AFAFINEARTS	AFA	AFAD AFAM AFAT AFAV

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\*\* Special Admissions Requirements—See an advisor

## Transfer Programs (continued)

Program	Award	Program Code	Major Code	Concentration Code
<b>Business</b>				
Business Administration	ABUS	AOBBUSIADMIN	BUD	
International Business Management	CERT	CRTIBM	IBM	
Retailing and Fashion Consumer Sciences	AA	AOABFT	BFT	
<b>Education</b>				
Early Childhood Education	AA	AOAECE	ECE	
Education	AA	AOAEDUCATION	EDU	
<i>Concentrations:</i>				
Elementary Education				EDUL
Early Childhood Education				EDUC
<b>Engineering</b>				
Engineering	AGS	AGSAGE	AGE	
<i>Concentrations:</i>				
Aerospace				AGEA
Biomedical				AGED
Biosystems				AGEB
Chemical				AGEH
Civil				AGEV
Computer and Electrical				AGER
Engineering Management				AGEE
General				AGEG
Industrial				AGEI
Material Science				AGET
Mechanical				AGEM
Mining				AGEN
Optical				AGEO
Systems				AGES
<b>Honors Program</b>				
Honors Program	CERT	CRTHON	HON	
<b>Hospitality</b>				
Hotel and Restaurant Management	AA	AOAHSPTALITY	HRM	
<b>Liberal Arts</b>				
Associate of Arts Degree	AA	AOALIBRALART	ALA	
<b>Political Science</b>				
Political Science	AA	AOAPOLITLSCI	POS	
<b>Psychology</b>				
Liberal Arts	AA	AOALIBRALART	ALA	
Psychology				ALAP
<b>Science</b>				
Associate of Science Degree	AS	AOSSCIENCE	ASI	
<b>Social Services</b>				
Social Services	AA	AOASOCIALSRV	SST	
<b>Sociology</b>				
Sociology	AA	AOASOCIOLOGY	SOC	

\* 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

# 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 in a combination of weekdays and evenings or a combination of evenings and online.

### 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, the Fraud Examination certificate, or explore business transfer options.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTACCOUNTIN.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7063

Program/Major Codes: **CRTACCOUNTIN/ACT**

### General Education Requirements - A grade of C or better is required for graduation

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....†	3
WRT 101, 107 or 154 fulfill this requirement	
Analysis and Critical Thinking Requirement.....	3
<b>Subtotal .....</b>	<b>3</b> ‡

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation</b>		
ACC 100	Practical Accounting Procedures (F-Sp-Su).....	3
ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201.....	3
ACC 102*	Managerial Accounting (F-Sp-Su) SUN# ACC 2202.....	3
ACC 150*	Payroll Accounting (F-Sp).....	3
ACC 200*	Computerized Accounting I (F-Sp).....	4
ACC 204*	Individual Tax Accounting (Sp).....	4
<b>Subtotal .....</b>	<b>20</b>	

### Required Support Courses

BUS 100	Introduction to Business (F-Sp-Su).....	3
BUS 220	Legal Environment of Business (F-Sp-Su).....	3
CSA 101*	Computer Fundamentals (F-Sp-Su).....	3
or CIS 100	Introduction to Computers (F-Sp-Su).....	3
MGT 110	Human Relations in Business and Industry (F-Sp)	
or BUS 148	Ethics in the Workplace (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or WRT 107*	Writing I for Non-Native Speakers of English (F-Sp)	
or WRT 154*	Career Communications (Sp).....	3
<b>Subtotal .....</b>	<b>15</b>	
<b>Total credits as displayed.....</b>	<b>38</b>	

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

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

## 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 in a combination of weekdays and evenings or a combination of evenings and online.

### 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, the Fraud Examination certificate, or work to complete a Bachelor of Applied Science program.

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7063

Program/Major Codes: **AASACCOUNTIN/ACC**

### General Education Requirements - A grade of C or better is required for graduation

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement.....	†
ECN 201 or 202 and BUS 148 fulfill this requirement.	
Computer and Information Literacy Requirement.....	†
CSA 101 or CIS 100 fulfills this requirement.	
Special Requirements	
BUS 148 fulfills this requirement.	
<b>Subtotal .....</b>	<b>12‡</b>

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-Su).....	3
ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201.....	3
ACC 102*	Managerial Accounting (F-Sp-Su) SUN# ACC 2202.....	3
ACC 150*	Payroll Accounting (F-Sp).....	3
ACC 173*	Governmental Accounting (Sp)	
or ACC 203	Cost Accounting (F)	
or ACC 210*	Computerized Accounting II (Sp).....	3
ACC 200*	Computerized Accounting I (F-Sp).....	4
ACC 201*	Intermediate Accounting I (F-Sp).....	3
ACC 202*	Intermediate Accounting II (F-Sp).....	3
ACC 204*	Individual Tax Accounting (Sp).....	4
<b>Subtotal .....</b>	<b>29</b>	

### Required Support Courses

BUS 100	Introduction to Business (F-Sp-Su).....	3
BUS 148	Ethics in the Workplace (F-Sp-Su).....	3
BUS 220	Legal Environment of Business (F-Sp-Su).....	3
CSA 101*	Computer Fundamentals (F-Sp-Su)	
or CIS 100	Introduction to Computers (F-Sp-Su).....	3
ECN 201	Microeconomic Principles (F-Sp-Su) SUN# ECN 2202	
or ECN 202	Macroeconomic Principles (F-Sp-Su) SUN# ECN 2201.....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
MGT 280*	Business Organization and Management (F-Sp).....	3
<b>Subtotal .....</b>	<b>21</b>	
<b>Total credits as displayed.....</b>	<b>62</b>	

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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



# 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. Complete this program by taking classes exclusively on weekdays or in a combination of weekdays and evenings/weekends.

### What can I do with this degree?

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

**Academic Options:**

While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** East Campus

**Department/Contact Information:**

Dean: 206-7694  
Lead Faculty: 206-7477

Program/Major Codes: **AASADMINJUST/AJS**

### General Education Requirements - A grade of C or better is required for graduation

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....	6
(NAU’s 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.....	†
AJS 225 and SOC 101 fulfill this requirement.	
Computer and Information Literacy Requirement.....	†
CSA 101 fulfills this requirement.	
Special Requirement	
POS 201 fulfills this requirement.	
<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.

AJS 101	Introduction to Administration of Justice Systems (F-Sp-Su) SUN# AJS 1101 .....	3
AJS 109	Criminal Law (F).....	3
AJS 115	Criminal Procedures (F) .....	3
AJS 123	Corrections as a Process (F-Su) .....	3
AJS 124	Ethics and the Administration of Justice (F)	
AJS 201	Rules of Evidence (F).....	3
AJS 212	Juvenile Justice Procedures (F-Sp-Su).....	3
AJS 225	Criminology (F).....	3
In addition, select two of the following courses:.....		6
AJS 204	Criminal Investigation (F)	
AJS 210	Police Community and Human Relations (F)	
AJS 246	Race and Ethnicity Issues in the Administration of Justice (F-Sp)	
AJS 260*	Criminal Justice Management (n/o)	
<b>Subtotal .....</b>		<b>30</b>

**Required Support Courses**

CSA 101	Computer Fundamentals (F-Sp-Su) .....	3
POS 201	American National Government and Politics (F-Sp-Su) SUN# POS 1110 .....	3
POS 231	American State and Local Governments and Politics (Sp) SUN# POS 1130 .....	3
PSY 101	Intro to Psychology (F-Sp-Su) SUN# PSY1101 .....	4
SOC 101	Intro to Sociology (F-Sp-Su) SUN# SOC 1101 .....	3
SPE 120	Business and Professional Communications (F-Sp-Su) .....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
<b>Subtotal</b> .....		<b>25</b>
<b>Total credits as displayed</b> .....		<b>61</b>

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or support courses.

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

## 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 by taking classes exclusively on weekdays, exclusively evenings, or in a combination of weekdays and evenings.

### 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

**Location:** East Campus

**Department/Contact Information:**

Dean: 206-7694

Lead Faculty: 206-7477

Program/Major Codes: **AOADMINJUST/AJT**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	6
Biological and Physical Sciences .....	8
Mathematics .....	3
Social and Behavioral Sciences .....	†
AJS 225 and either SOC 101 or PSY 101 fulfills this requirement.	
Other Requirements .....	6
Special Requirements	
The I, C, and G requirements should be fulfilled by completing appropriate courses in the above categories.	
<b>Subtotal</b> .....	<b>29¥</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
AJS 101	Introduction to Administration of Justice Systems (F-Sp-S) SUN# AJS 1101 .....	3
AJS 109	Criminal Law (F).....	3
AJS 115	Criminal Procedures (F) .....	3
AJS 123	Corrections as a Process (F-Su) .....	3
AJS 124	Ethics and the Administration of Justice (F).....	3
AJS 201	Rules of Evidence (F).....	3
AJS 212	Juvenile Justice Procedures (F) .....	3
AJS 225	Criminology (F).....	3
Department Electives:		
In addition, select two of the following courses:.....		6
AJS 204	Criminal Investigation (F)	
AJS 210	Police Community and Human Relations (F)	
AJS 246	Race and Ethnicity Issues in the Administration of Justice (F-Sp)	
AJS 260*	Criminal Justice Management (n/o)	
<b>Subtotal</b> .....		<b>30</b>
<b>Required Support Courses</b>		
Select one of the following courses:		
PSY 101	Intro to Psychology (F-Sp-Su) SUN# PSY1101 .....	4
or SOC 101	Intro to Sociology (F-Sp-Su) SUN# SOC 1101 .....	3
<b>Subtotal</b> .....		<b>3-4</b>
<b>Total credits as displayed</b> .....		<b>62-63</b>

† Core or support course(s) fulfill this requirement.  
 ‡ AGEC requires 35 credits. This subtotal shows the AGEC credits not fulfilled by core, support, or Support courses.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.

# 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 by taking classes in a combination of weekdays and evenings.

### 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.
- Location:** West Campus
- Department/Contact Information:**  
 Dean: 206-6996  
 Lead Faculty: 206-6905  
 Program/Major Codes: **AOAAMRINDSTU/AIS**

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

*Course lists for each General Education category listed below can be found starting on page 57.*

English Composition .....	6
Humanities and Fine Arts .....	3
ANT 206 fulfills 3 credits in the Humanities category. Complete one course from the Art List.	
Biological and Physical Sciences.....	8
Mathematics .....	3
Social and Behavioral Sciences .....	†
HIS 124 and HUM 260 fulfill this requirement.	
Other Requirements.....	†
Second language courses fulfill this requirement.	
AGEC Special Requirements.....	†
HIS 124 and HUM 260 fulfill the I, C and G requirements.	
<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) .....	3
HIS 122	Tohono O'odham History and Culture (Sp) .....	3
HIS 124	History and Culture of the Yaqui People (n/o) .....	3
HIS 148	History of Indians of North America (F-Sp) .....	3
HUM 260	Intercultural Perspectives (F-Sp-Su).....	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.	
<b>Subtotal .....</b>	<b>25-29</b>
<b>Total credits as displayed.....</b>	<b>60-64</b>

† 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 course has a prerequisite, co-requisite, or recommendation. See description section.

# 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 by taking classes exclusively on weekdays, or in a combination of weekdays and evenings.

### What can I do with this degree?

Academic Options: Attend a university degree program in anthropology or archaeology. You may also choose to pursue a Field Archaeology Certificate to learn practical archaeological fieldwork techniques.  
 Location: West Campus  
 Department/Contact Information:  
 Dean: 206-6996  
 Lead Faculty: 206-6905  
 Program/Major/Concentration Codes: AOAANTHROPOL/ANT/\*\*\*\* (see concentration codes below)

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	6
Biological and Physical Sciences** .....	8
Mathematics .....	3
Social and Behavioral Sciences .....	3
ANT 101 fulfills 3 credits of this requirement. Complete a non-ANT course from this category.	
Other Requirements.....	†
ANT 102 and 210 fulfills this requirement.	
Special Requirements	
ANT 210 fulfills the I and G requirement. The C requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>26</b>

<b>Course Number</b>	<b>Course Title</b>	<b>Credit Hours</b>
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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
ANT 102	Introduction to Cultural Anthropology and Linguistics (F-Sp) .....	3
ANT/ARC 204IN	Human Evolution: Ape Men, Cave Women and Missing Links (Sp).....	4
ANT 210*	Cultural Anthropology (Sp).....	3
ANT 215	The Nature of Language (F) .....	3
ANT/ARC 225*	Principles of Archaeology (F).....	3
Second Language	.....	8
Completion of a Language course numbered 102*, second semester level. (Bilingual 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 may be required to meet the minimum associate degree requirement of 60 credit hours.		
<b>Subtotal .....</b>		<b>27</b>

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

Complete one of the following concentrations: ..... 9-12  
 Department chair or faculty advisor approval is recommended in the selection of the program option.

**Anthropology Concentration** (Concentration Code: AANT)

Anthropology Electives in consultation with an Anthropology faculty advisor  
 or Language courses numbered 201 and 202, third and fourth semester level .....6-8

NOTE: ASU, NAU and UA require fourth semester level language proficiency for a B.A. in Anthropology

Transferable Elective .....3

**Subtotal** ..... **9-11**

**Archaeology Concentration** (Concentration Code: AARC)

ARC 275 Archaeology Excavation I (F) .....4

GLG 101IN Physical Geology (F-Sp) SUN# GLG 1101 ..... \*\*

GLG 102IN\* Historical Geology (F-Sp) ..... \*\*  
 or BIO 109IN Natural History of the Southwest (F-Sp)..... \*\*

Archaeology Electives in consultation with an Anthropology faculty advisor  
 or Language courses numbered 201 and 202, third and fourth semester level .....6-8

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

NOTE: ASU, NAU and UA require fourth semester level language proficiency for a B.A. in Anthropology

**Total credits as displayed**..... **62-65**

† 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 course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* For the Archaeology Concentration, GLG 101IN and either GLG 102IN or BIO 109IN meet the Biological and Physical Sciences AGEC requirement.

# Archaeology

## Field Archaeology Certificate for Direct Employment

Dig into the past by studying archaeological fieldwork. 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 by taking classes in a combination of weekdays and evenings.

### 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 archaeology degree program should pursue an Anthropology AA degree simultaneously with this certificate.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6905

Program/Major/Concentration Codes: **CRTFLDARCHEO/ARF/\*\*\*\*** (see concentration codes below)

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ANT/ARC 101 or ANT/ ARC 204IN	Human Origins and Prehistory (F-Sp)	3-4
ANT/ARC/GIS 181	Global Positioning Systems Basics (F-Sp)	1
ANT/ARC/GEO/ GIS 265	Mapping Concepts (F)	1
ANT/ARC 275	Archaeological Excavation I (F)	4
ANT/ARC 276*	Archaeological Surveying I (Sp)	4
<b>Subtotal</b>		<b>13-14</b>
<b>Core Concentrations - A grade of C or better is required for graduation.</b>		
Complete one (or more) of the following concentrations.		4-15
Department faculty approval is recommended in the selection of the program concentration and electives.		
<b>Field and Lab Fundamentals</b> (Concentration Code: ARCL)		
ANT/ARC 180	Artifact Identification: Tucson Basin (Sp)	1
ANT/ARC 225*	Principles of Archaeology (F)	3
<b>Subtotal</b>		<b>4</b>
<b>Southwestern Cultures</b> (Concentration Code: ARCS)		
ANT 102 or ANT 112	Introduction to Cultural Anthropology and Linguistics (F-Sp) Exploring Non-Western Cultures (F-Sp-Su)	3
ANT/ARC 205	Introduction to Southwestern Prehistory (F-Sp)	3
ANT/ARC 225*	Principles of Archaeology (F)	3
<b>Subtotal</b>		<b>9</b>

**Field Methods** (Concentration Code: ARCM)

ANT/ARC 225*	Principles of Archaeology (F).....	3
ANT/ARC 250*	Archaeology Laboratory (Sp) .....	4
ANT/ARC 277* or ANT/ARC 278*	Archaeological Excavation II (F) Archaeological Surveying II (n/o).....	4
ANT/ARC/GIS 281	Global Positioning Systems (Sp).....	1
ARC Elective	Elective in consultation with ARC faculty advisor .....	3
<b>Subtotal</b>	.....	<b>15</b>

**Geospatial Information Studies and Technology** (Concentration Code: ARCC)

ANT/ARC/ GEO/GIS 267*	Introduction to Geographic Information Systems (F) .....	3
ANT/ARC/ GIS 281	Global Positioning Systems (Sp).....	1
ANT/ARC/GEO/ GIS 284*	Computer Cartography and CAD (n/o).....	3
ANT/ARC/ GIS 286* or DAR 120	Electronic and Digital Field Mapping (Sp) Applied Computer Graphics (F-Sp-Su).....	4
ARC, CIS, DAR, Elective	Elective in consultation with Archeology faculty advisor .....	3
<b>Subtotal</b>	.....	<b>14</b>

**Total credits as displayed**..... **17-29**

\* 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 or UA. Complete this program by taking classes exclusively on weekdays, exclusively evenings/weekends, or in a combination of weekdays and evenings/weekends.

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:** Continue your studies by taking additional transfer coursework to complete an Associate of Arts, Associate of Business Administration, or Associate of Science degree, then transfer to a college or university.

**Locations:** All campuses

**Contact Information:** Contact any campus Student Services office ([www.pima.edu/mhtml/email/advising](http://www.pima.edu/mhtml/email/advising)).

### Required Courses

At least 35 credits and 11 courses are required for this certificate.

Complete an AGEC-A for Associate of Arts, Associate of Fine Arts, and Bachelor of Arts degrees; complete an AGEC-B for Associate of Business and Bachelor of Science in Business degrees; complete an AGEC-S for Associate of Science and most Bachelor of Science degrees.

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

Course lists for each General Education category listed below, and specific requirements for the AGEC-A, -B, and -C can be found starting on page 57.

English Composition (2 courses) .....	6
Mathematics (1 course) .....	3
Biological and Physical Sciences (2 courses w/ labs) .....	8
Humanities and Fine Arts (2 courses) .....	6
Social and Behavioral Sciences (2 courses) .....	6
Other Requirements (2 courses) .....	6
Special Requirements	
The I, C, and G requirements should be fulfilled by completing appropriate courses in the above categories.	
<b>Total credits</b> .....	<b>35</b>

# 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 by taking classes exclusively on weekdays, or in a combination of weekdays and evenings.

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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

#### Department/Contact Information:

Dean: 206-6690

Lead Faculty: 206-6882

Program/Major Codes: **AAAAPPLDARTS/APT**

#### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	†
ART 130 and 131 fulfill this requirement.	
Computer and Information Literacy Requirement .....	1-3
Special Requirement	
ART 130 fulfills this requirement.	
<b>Subtotal .....</b>	<b>13-15†</b>

Course Number	Course Title	Credit Hours
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#### Required Core Courses - A grade of C or better is required for graduation.

ART 100	Basic Design (F-Sp-Su) .....	3
ART 110*	Drawing I (F-Sp-Su) SUN# ART 1111 .....	3
ART 115*	Color and Composition (F-Sp).....	3
ART 120*	Sculptural Design (F-Sp).....	3
ART 130	Art and Culture: Prehistoric Through Gothic (F-Sp-Su) SUN# ART 1101 .....	3
ART 131	Art and Culture: Late Gothic Through Modern Periods (F-Sp-Su) SUN# ART 1102.....	3
ART/FDC 288	Portfolio Preparation (F).....	3
<b>Subtotal .....</b>	<b>21</b>	

**Art Electives: - A grade of C or better is required for graduation.**

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

**Art History and Art Education**

ART 105	Exploring Art and Visual Culture (F-Sp-Su).....	3
ART 133	Art in America (Sp).....	3
ART 135	Pre-Columbian Art (n/o).....	3
ART 136	Body and Art (F-Sp).....	3
ART 230	History of Photography (Sp).....	3
ART 250*	Gallery and Museum Practices (F-Sp).....	3
ART 29611*	Independent Study in ART: Art History (n/o).....	3

**Ceramics**

ART 160*	Ceramics I (F-Sp-Su).....	3
ART 260*	Ceramics II (F-Sp).....	3
ART 261*	Ceramics III (F-Sp).....	3
ART 262*	Ceramics IV (Sp).....	3
ART 29612*	Independent Study in ART: Ceramics (F-Sp).....	3

**Digital Arts**

DAR 103	Introduction to Digital Arts (F-Sp-Su).....	3
DAR 120	Applied Computer Graphics (F-Sp-Su).....	4
DAR 122*	DeskTop Graphics: Adobe Illustrator (F-Sp-Su).....	4
DAR 146	Lighting for Photography I (F).....	4
DAR 173	History of American Cinema (F-Sp-Su).....	3
DAR 220*	DeskTop Publishing for Digital Arts: QuarkXpress (n/o).....	4
DAR 223*	Digital Drawing and Painting (Sp).....	4
DAR 226*	DeskTop Publishing for Digital Arts: Adobe InDesign (F-Sp).....	4
DAR 246	Lighting for Photography II (Sp).....	4

**Fashion Design**

FDC 110	Clothing Construction I (F-Sp-Su).....	3
FDC 111	Clothing Construction II (F-Sp).....	3
FDC 112	Alteration and Pattern Fitting (Sp).....	3
FDC 121*	Flat Pattern Making I (F).....	3
FDC 122	History of Clothing (Sp).....	3
FDC 123*	Computer Pattern-Making I (Sp).....	3
FDC 126	Textiles (Sp).....	3
FDC 131	Wardrobe and Styling (F).....	3
FDC 132	Global Fashion and Culture (Sp).....	3
FDC 135*	Fashion Show/Event Planning (Sp).....	3
FDC 141	Introduction to Fashion Design (Sp).....	3
FDC 142*	Restyling and Alterations (F).....	3
FDC 144*	Fashion Drawing (F).....	3
FDC 211*	Clothing Construction III (F-Sp).....	3
FDC 212*	Tailoring: Jackets (F).....	3
FDC 213*	Tailoring: Pants and Shirts (F).....	3
FDC 214*	Bridal and Formal Wear (Sp).....	3
FDC 221*	Flat Patternmaking II (Sp).....	3
FDC 223*	Computer Pattern-Making II (Sp).....	3
FDC 224*	Computer Pattern-Making III (n/o).....	3
FDC 241*	Draping I (F).....	3
FDC 242*	Draping II (n/o).....	3
FDC 245	Digital Fashion Design (Sp).....	3
FDC 289*	Fashion Design and Clothing Capstone (n/o).....	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) .....	3
<b>Metalwork</b>			
ART	123*	Lost Wax Sculpture Casting (F-Sp).....	3
ART	170*	Metalwork I: Jewelry (F-Sp-Su).....	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 (n/o).....	3
ART	29613*	Independent Study in ART: Metals (n/o) .....	3
<b>Painting and Drawing</b>			
ART	106	Survey of Painting Materials and Techniques (F, Sp).....	3
ART	109	Watercolor Painting .....	3
ART	210*	Drawing II (F-Sp).....	3
ART	213*	Life Drawing (F-Sp).....	3
ART	215*	Painting I (F-Sp) .....	3
ART	217*	Painting II (F-Sp).....	3
ART	29614*	Independent Study in ART: Painting, Drawing, and Design (F-Sp).....	3
<b>Photography</b>			
ART	128*	Digital Photography I (F-Sp-Su).....	4
ART	140*	Photography I (F-Sp).....	3
ART	141*	Photography II (F-Sp) .....	3
ART	146*	Lighting for Photography I (F).....	4
ART	147*	Alternative Processes in Photography (F-Sp) .....	3
ART	232	Digital Photography II (F-Sp) .....	4
ART	233	Digital Photography III (Sp).....	4
ART	246*	Lighting for Photography II (Sp).....	4
ART	29615*	Independent Study in ART: Photography (F-Sp) .....	3
<b>Printmaking</b>			
ART	212*	Printmaking I (F-Sp).....	3
ART	214*	Printmaking II (F-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) .....	3
<b>Sculpture/Glass Art</b>			
ART	121*	Figure Sculpture (n/o).....	3
ART	220*	Sculpture (F-Sp).....	3
ART	265*	Furnace Glassblowing I (F-Sp).....	3
ART	266*	Furnace Glassblowing II (n/o).....	3
ART	29617*	Independent Study in ART: Sculpture (F-Sp) .....	3
ART	29619*	Independent Study in ART: Glass (n/o) .....	3
<b>Other</b>			
MKT	139	Retailing (F-Sp)	
	or BUS 100	Introduction to Business (F-Sp-Su).....	3
MAC	110*	Manual Machine Shop (Sp).....	4
WLD	120	Welding for Metal Sculpture (Sp).....	4
<b>Subtotal .....</b>			<b>30</b>
<b>Total credits as displayed.....</b>			<b>64-66</b>

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

# Fine Arts

Gain knowledge and experience working in a variety of media.

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

## 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 by taking classes exclusively on weekdays, or in a combination of weekdays and evenings.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6882

Program/Major/Concentration Codes: **AFAFINEARTS/AFA/AFAV**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	†
ART 100 and 130 fulfill this requirement.	
Biological and Physical Sciences.....	8
Mathematics .....	3
Social and Behavioral Sciences .....	6
Other Requirements.....	†
ART 110 and 131 fulfill requirement.	
Special Requirements	
ART 130 fulfills the I and G requirements. The C requirement should be fulfilled by a course in the Social and Behavioral Sciences category.	
<b>Subtotal .....</b>	<b>23</b>

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-Su) .....	3
ART 110*	Drawing I (F-Sp-Su) SUN# ART 1111 .....	3
ART 115*	Color and Composition (F-Sp).....	3
ART 120*	Sculptural Design (F-Sp).....	3
ART 130	Art and Culture: Prehistoric Through Gothic (F-Sp-Su) SUN# ART 1101.....	3
ART 131	Art and Culture: Late Gothic Through Modern Periods (F-Sp-Su) SUN# ART 1102 .....	3
ART 210*	Drawing II (F-Sp)	
or 213*	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**

Complete five or six courses for a minimum of 16 credits from any of the following categories:..... 16

**Art in the Craft Media**

ART 160*	Ceramics I (F-Sp-Su).....	3
ART 170*	Metalwork I: Jewelry (F-Sp-Su).....	3
ART 180*	Weaving I: Four-Harness Loom (F).....	3
ART 181*	Mixed Media Fibers (Sp).....	3
ART 260*	Ceramics II (F-Sp).....	3
ART 261*	Ceramics III (F-Sp).....	3
ART 262*	Ceramics IV (Sp).....	3
ART 270*	Metalwork II: Jewelry (Sp).....	3
ART 271*	Metalwork II: Smithing and Casting (n/o).....	3
ART 280*	Weaving II (F-Sp).....	3

**Photography**

ART 128*	Digital Photography I (F-Sp-Su).....	4
ART 140*	Photography I (F-Sp).....	3
ART 141*	Photography II (F-Sp).....	3
ART 147*	Alternative Processes in Photography (F-Sp).....	3
ART 230	History of Photography (Sp).....	3

**Art History**

ART 135	Pre-Columbian Art (n/o).....	3
ART 136	Body and Art (F-Sp).....	3

**Drawing, Painting, and Sculpture**

ART 106	Survey of Painting Materials and Techniques (F-Sp-Su).....	3
ART 109	Watercolor Painting.....	3
ART 121*	Figure Sculpture (n/o).....	3
ART 210*	Drawing II (F-Sp).....	3
ART 213*	Life Drawing (F-Sp).....	3
ART 215*	Painting I (F-Sp).....	3
ART 217*	Painting II (F-Sp).....	3
ART 220*	Sculpture (F-Sp).....	3

**Printmaking**

ART 212*	Printmaking I (F-Sp).....	3
ART 214*	Printmaking II (F-Sp).....	3
ART 216*	Screenprinting I (F-Sp).....	3
ART 218*	Screenprinting II (F-Sp).....	3
ART 219*	Printmaking III (Sp).....	3

**Subtotal .....** 16**Total credits .....** 60

† 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 course has a prerequisite, co-requisite, or recommendation. See course description section.

## Visual and Performing Arts — Associate of Fine Arts for Transfer — Music Concentration

Study music theory and performance while preparing to transfer to a four-year university. Complete this program by taking classes exclusively on weekdays.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

**Lead Faculty:** Music 206-6826

Program/Major/Concentration Codes: **AFAFINEARTS/AFA/AFAM**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	†
MUS 125 and 201 fulfill this requirement.	
Biological and Physical Sciences.....	8
Mathematics .....	3
Social and Behavioral Sciences .....	6
Other Requirements.....	3
MUS 202 fulfills 3 credits of this requirement. Complete a non-Humanities and Fine Arts course from this category.	
Special Requirements	
The I, C, and G requirement should be fulfilled by courses in the above categories.	
<b>Subtotal .....</b>	<b>26†</b>

### Required Core Courses - A grade of C or better is required for graduation.

MUP 261-268*	Studio Instruction: III (Major) (F-Sp) .....	2
MUP 271-278*	Studio Instruction: IV (Major) (F-Sp).....	2
MUS 125*	Structure of Music I (F-Sp) .....	3
MUS 126*	Structure of Music II (Sp-Su) .....	3
MUS 127*	Aural Perception I (F-Sp).....	2
MUS 129*	Aural Perception II (Sp-Su).....	2
MUS 141	Piano Class I (Majors) (F-Sp) .....	2
MUS 142*	Piano Class II (Majors) (Sp-Su) .....	2
MUS 143*	Piano Class III (Majors) (F) .....	2
MUS 144*	Piano Class IV (Majors) (Sp) .....	2
MUP 161-168*	Studio Instruction: I (Major) (F-Sp) .....	2
MUP 171-178*	Studio Instruction: II (Major) (F-Sp) .....	2
MUS 201*	History and Literature of Music I (F).....	3
MUS 202*	History and Literature of Music II (Sp).....	3
MUS 223*	Structure of Music III (F) SUN# MUS 2222** .....	3
MUS 224*	Aural Perception III (F) SUN# MUS 2222** .....	2
MUS 226*	Structure of Music IV (Sp) SUN# MUS 2223*** .....	3
MUS 228*	Aural Perception IV (Sp) SUN# MUS 2223*** .....	2
<b>Subtotal .....</b>		<b>42</b>

**Core Options: - A grade of C or better is required for graduation.**

Complete six credits from the following. A course may be taken more than once to fulfill this requirement:

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>

† 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 course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Both MUS 223 and 224 must be completed in order to get the MUS 2222 SUN designation.

\*\*\* Both MUS 226 and 228 must be completed in order to get the MUS 2223 SUN designation.

**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 by taking classes exclusively on weekdays.

**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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: Theater 206-6720

Program/Major/Concentration Codes: **AFAFINEARTS/AFA/AFAT**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	†
THE 105 and 140 fulfill this requirement.	
Biological and Physical Sciences.....	8
Mathematics .....	3
Social and Behavioral Sciences .....	6
Other Requirements.....	6
Special Requirements	
THE 105 fulfills the C requirement. The I and G requirements should be fulfilled by completing appropriate courses in the above categories.	
<b>Subtotal</b> .....	<b>29‡</b>

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

THE 104	Voice and Movement for the Actor (F-Sp) .....	3
THE 105*	Theater Appreciation (F-Sp-Su) .....	3
THE 111	Stagecraft (F-Sp).....	3
THE 113	Stagecraft Crew (F-Sp) .....	1
THE 125*	Theater Production (F-Sp) .....	2
THE 140	History of Theater to the 18th Century (F).....	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 245	Principles of Dramatic Structure (Sp) SUN# THE 2220 .....	3
THE ELEC	Any transferable THE course.....	3
<b>Subtotal</b> .....		<b>30</b>



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

Complete one of the following options after consulting with a theatre department faculty advisor or counselor:

**Option 1**

THE 118	Basic Theater Graphics (n/o) .....	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** ..... 65

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

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

**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 by taking classes exclusively on weekdays, or in a combination of weekdays.

**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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: Dance 206-6826

Program/Major/Concentration Codes: **AFAFINEARTS/AFA/AFAD**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	6
Some support electives fulfill requirements in this category - see an advisor.	
Biological and Physical Sciences .....	8
Mathematics .....	3
Social and Behavioral Sciences .....	6
Other Requirements** .....	6

Special Requirements

The I, C, and G requirements should be fulfilled by completing appropriate courses in the above categories.

**Subtotal** ..... 35

**Required Core Courses - A grade of C or better is required for graduation.**

DNC 107	Dance Conditioning (F-Sp-Su) .....	2
DNC 150	Ballet I (F-Sp-Su) .....	2
DNC 166	Modern Dance I (F-Sp) .....	2
DNC 180*	Choreography (Sp) .....	2
DNC 200	Dance Appreciation and History (F).....	3
DNC 219	Jazz Dance I (F-Sp) .....	2
DNC 230*	Rhythms for Dance (Su) .....	2
DNC 269*	Dance Production and Performance (F-Sp) .....	3

**Subtotal** ..... 18

**Core Options: - A grade of C or better is required for graduation.**

Complete one of the following options after consulting a dance department faculty advisor or counselor:.....6

**Option 1:**

DNC 215*	Teaching Methods for Dance I (n/o) .....	3
DNC 216*	Teaching Methods for Dance II (n/o) .....	3

**Option 2:**

DNC 152*	Ballet III (F) .....	2
DNC 168*	Modern Dance III (F) .....	2
DNC 221*	Jazz Dance III (F) .....	2
<b>Subtotal</b> .....		<b>6</b>

**Support Electives**

Choose up to 5 credits.\*\*\*

Note: Classes taken for repeat credit will only count once. ....5

DNC 130	Tap Dance I (F-Sp) .....	2
DNC 131*	Tap Dance II (n/o) .....	2
DNC 151*	Ballet II (Sp) .....	2
DNC 167*	Modern Dance II (Sp) .....	2
DNC 220*	Jazz Dance II (Sp) .....	2
DNC 280	Business for Dance Careers (F) .....	3
DNC 285	Technology for Dance (n/o) .....	2
MUS 102	Music Fundamentals (F-Sp) .....	3
MUS 151	Exploring Music (F-Sp-Su) .....	3
MUS 160	Popular Music in America (F-Sp-Su) .....	3
THE 105*	Theater Appreciation (F-Sp-Su) .....	3
THE 149	Introduction to Acting I (F-Sp) .....	3

**Subtotal** ..... 5**Total credits** ..... 64

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

\*\*Some support electives fulfill requirements in this category. See an advisor.

\*\*\*Additional credits may be needed to have a minimum of 60 credits if these courses also satisfy General Education Requirements.

# Associate of Arts

## Associate of Arts Degree for Transfer in Liberal Arts

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. Complete this program by taking classes exclusively on weekdays, exclusively on evenings, exclusively online, or in a combination of weekdays and/or evenings and/or online.

Concentrations are available for Psychology, and emphases in Creative Writing and Speech Communication. Specialized AA degrees are available in: Administration of Justice, American Indian Studies, Anthropology, Elementary Education, Hotel and Restaurant Management, Political Science, Social Services and Sociology.

Students, especially those transferring to the University of Arizona, are encouraged to enroll in STU 210, Transfer Strategies, to plan for the transfer process and success at the university.

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 (refer to university transfer guides for core or elective courses and language requirements).

- Asian Studies
- Biology (for ASU and NAU; for the UA complete the Associate of Science)
- Communication
- Creative Writing
- Education: Secondary or Special Education/Rehabilitation
- English
- Environmental Science
- Exercise Science
- Family Studies
- History
- Journalism
- Languages
- Mathematics
- Media Arts
- Mexican American Studies
- Pre-Agriculture
- Pre-Pharmacy
- Pre-Law
- Psychology
- Women's Studies

### *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

**Contact Information:** Contact any campus Student Services office ([www.pima.edu/mhtml/email/advising](http://www.pima.edu/mhtml/email/advising)).

Program/Major Codes: **AOALIBRALART/ALA****Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required in all courses for graduation.***Course lists for each General Education category listed below can be found starting on page 57.*

English Composition .....	6
Humanities and Fine Arts .....	6
Biological and Physical Sciences.....	8
Mathematics .....	3
Social and Behavioral Sciences .....	6
Other Requirements.....	6
AGEC Special Requirements	
The I, C, and G requirements should be fulfilled by completing appropriate courses in the above categories.	
<b>Subtotal .....</b>	<b>35</b>

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

Select 25-29 transferable credits from transfer guides, second language courses, or any transferable 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 bachelor of arts degrees require a language course numbered 202, fourth-semester level. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.)	
<b>Subtotal .....</b>	<b>25-29</b>
<b>Total credits as displayed.....</b>	<b>60-64</b>

# 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. Complete this program by taking classes exclusively on weekdays, exclusively on evenings, or in combination of weekdays and evenings.

Pre-Pharmacy students should complete the Associate of 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 (refer to university transfer guides for core or elective courses and language requirements).

- Astronomy
- Biochemistry
- Biology (for UA; for ASU and NAU you can complete the Associate of Arts)
- Chemistry
- Computer Science
- Geography
- Microbiology
- Molecular/Cellular Biology
- Physics
- Pre-Dentistry
- Pre-Medicine
- Pre-Veterinary Science
- Zoology

### 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
- Contact Information:** Contact any campus Student Services office ([www.pima.edu/mhtml/email/advising](http://www.pima.edu/mhtml/email/advising)).
- Program/Major Codes: **AOSSCIENCE/ASI**

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

*Course lists for each General Education category listed below can be found starting on page 57.*

English Composition .....	6
Humanities and Fine Arts .....	6
Biological and Physical Sciences.....	†
The combination of CHM 151 & 152 and their labs or PHY 210 & 216 and their labs fulfill this requirement.	
Mathematics .....	†
MAT 220 fulfills this requirement.	
Social and Behavioral Sciences .....	6
Other Requirement Options.....	6
Complete MAT courses above MAT 220 and/or additional Science courses from the Biological and Physical Sciences list.	
AGEC Special Requirements	
The I, C, and G requirements should be fulfilled by completing appropriate courses in the above categories.	
<b>Subtotal .....</b>	<b>24 †</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses: A grade of C or better is required in all courses for graduation.</b>		
CHM 151/151LB or 151IN*	General Chemistry I (F-Sp-Su) SUN# CHM 1151	
	and	
CHM 152/152LB or 152IN*	General Chemistry II (F-Sp-Su) SUN# CHM 1152	
	OR	
PHY 210/210LB or 210IN*	Introductory Mechanics (F-Sp-Su) SUN# PHY 1131	
	and	
PHY 216/216LB or 216IN*	Introductory Electricity and Magnetism (F-Sp-Su).....	10
MAT 220*	Calculus I (F-Sp-Su) SUN# MAT 2220.....	5
Major/Electives	.....	21-25
Complete additional science and math courses as needed to meet major requirements for a bachelor's degree. The second language requirement is dependent upon your major. It is not a requirement of this degree, but some university degrees require a language proficiency. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.)		
<b>Subtotal</b>	.....	<b>36-40</b>
<b>Total credits as displayed</b>	.....	<b>60-64</b>

† 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 course has a prerequisite, co-requisite, or recommendation. See course description section.

# 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.

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## *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

**Contact Information:** Contact any campus Student Services office ([www.pima.edu/mhtml/email/advising](http://www.pima.edu/mhtml/email/advising)).

## 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 engine diagnosis and repair to electrical fundamentals, steering and alignment, and brakes, cover the basics of auto mechanics. Complete this program by taking classes exclusively on weekdays, exclusively evenings, exclusively weekends, or in a combination of weekdays, evenings and weekends.

#### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTAUTOMECHS.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Auto Lab: 206-7190

Program/Major Codes: **CRTAUTOMECHS/AUM**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
AUT 100	Small Engine Troubleshooting & Repair (F-Sp-Su) .....	3
AUT 101	Automotive Maintenance (F-Sp-Su) .....	3
AUT 105	Light Line Maintenance (F-Sp-Su) .....	3
AUT 120	Engine Diagnosis and Repair (F-Sp-Su) .....	3
AUT 128	Automotive Electrical Fundamentals and Applications (F-Sp-Su) .....	3
AUT 139	Automotive Steering and Alignment Systems (F-Sp-Su) .....	3
AUT 140	Automotive Brakes Diagnosis and Repair (F-Sp-Su) .....	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 by taking classes exclusively on weekdays, exclusively evenings, exclusively weekends, or in a combination of weekdays, evenings and weekends.

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

**Career options:** Auto mechanic or technician, service writer, parts specialist or auto sales positions.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Auto Lab: 206-7190

Program/Major Codes: **AASAUTOTECHN/AUT**



**General Education Requirement - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	1-3
<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.**

AUT 100	Small Engine Troubleshooting and Repair (F-Sp-S) .....	3
AUT 101	Automotive Maintenance (F-Sp-S) .....	3
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-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-Su) .....	3
AUT 132	Automotive Drivetrain Removal and Replacement (F-Sp) .....	3
AUT 133	Automatic Transmission/Transaxle Service and Rebuilding (F-Sp-Su).....	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 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>Subtotal .....</b>	<b>48</b>	
<b>Total credits as displayed.....</b>	<b>67-69</b>	

# Aviation Technology

Gain skills and knowledge of Airframe and Powerplant, Structural Repair, or Avionics Technology.

## Aviation Technology — Associate of Applied Science for Direct Employment

Gain skills and knowledge of Airframe and Powerplant, Structural Repair, or Avionics. Complete this program by taking classes exclusively on weekdays.

### What can I do with this degree?

**Career Options:** Work in the aircraft industry as an Aviation Maintenance Technician.

**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.

**Location:** Desert Vista Campus

**Department/Contact Information:**

Dean: 206-5250

Lead Faculty: 206-5910

Program/Major/Concentration Codes: **AASAVIATION/AVM/\*\*\*\*** (see concentration codes below)

### Program Prerequisites

Students must have completed the following prerequisites (with grades posted) before they may begin the application process.

REA 091 with a grade of C or better or Reading assessment at REA 112 or better.....	0-4
MAT 086 with a grade of C or better or Math assessment at MAT 092 or higher.....	0-3
<b>Subtotal</b> .....	<b>0-7</b>

### General Education Requirements - A grade of C or better is required for graduation.

*Course lists for each General Education category listed below can be found starting on page 55.*

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	3-6
<i>(GTM 105 in the Structural Repair concentration fulfills 3 credits in the Mathematics category.)</i>	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	1-3
<b>Subtotal</b> .....	<b>16-21</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

Complete one of the following concentrations.....49-69

**Airframe and Powerplant** (Concentration Code: AVMA)

AVM 105	Aircraft Sheetmetal Repair (Su) .....	5
AVM 130*	Aircraft Composite Repair (Sp) .....	5
AVM 209*	Intermediate Electricity (Sp) .....	5
AVM 211	Alternate Structures (F-Sp).....	5
AVM 218	Airframe Rigging and Landing Gear Systems (F-Sp).....	3
AVM 219*	Airframe Inspections (Sp) .....	3
AVM 223	Hydraulic and Pneumatic Power (F-Sp) .....	3
AVM 224	Atmospheric Controls (F-Sp) .....	3
AVM 225	Fire, Ice, Rain and Fuel Systems (F-Sp).....	3
AVM 226*	Engine Electrical Systems (F-Sp).....	5
AVM 227	Engine Air Flow Systems (F-Sp) .....	3
AVM 228*	Aircraft Propellers (F-Sp) .....	3
AVM 229*	Engine Support Systems (Sp-Su) .....	3
AVM 231	Engine Principles, Monitoring, and Inspection (F-Sp).....	5
AVM 232	Reciprocating Engine Overhaul (F-Sp).....	5
AVM 233	Turbine Engines (F-Su).....	5

AVM 234*	Engine Fuel Metering and Operation (Sp-Su) .....	5
<b>Subtotal</b> .....		<b>69</b>

**Structural Repair** (Concentration Code: AVMS)

AVM 101*	Structural Repair I (F) .....	4
AVM 102*	Structural Repair II (F) .....	4
AVM 110	Aircraft Blueprint Reading (F-Su) .....	3
AVM 114	Regulatory Requirements (F-Su) .....	3
AVM 150*	Structural Repair III (F) .....	4
AVM 151*	Structural Repair IV (F) .....	4
AVM 165	Aircraft Hardware and Fasteners (Sp) .....	3
AVM 203*	Structural Repair V (F) .....	4
AVM 204*	Structural Repair VI (F) .....	4
AVM 205	Motion Dynamics (F-Su) .....	3
AVM 206	Materials and Processes (F-Su) .....	3
AVM 210/210LB	Advanced Composite Aircraft Repair I (Su) .....	5
AVM 211	Alternate Structures (F-Su) .....	5
AVM 260*/260LB*	Advanced Composite Aircraft Repair II (Su) .....	4
GTM 105*	Applied Technical Mathematics (F-Sp) .....	3
<b>Subtotal</b> .....		<b>56</b>

**Avionics Technician** (Concentration Code: AVMT)

ATT 101*	Avionics Familiarization (F) .....	3
ATT 102*	Aircraft Electrical Systems (F) .....	3
ATT 103*	Basics of Avionics Installation (F) .....	3
ATT 104*	Operating Systems I, Communication and Navigation (F) .....	3
ATT 200*	Communication and Navigation Installation (F) .....	5
ATT 201*	Operating Systems II, GPS Navigation and Autopilot (F) .....	3
ATT 202*	GPS Navigation and Autopilot Installation (F) .....	5
ATT 203*	Avionics Test Equipment (F) .....	3
ATT 204*	Glass Cockpit Installer (Sp) .....	5
ATT 205*	Operating Systems III, Infrared and Weather Radar (Sp) .....	3
ATT 206*	Infrared and Weather Radar Installation (Sp) .....	5
<b>Subtotal</b> .....		<b>41</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>60-97</b>

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

## Advanced Aviation Technology — Certificate for Direct Employment

Gain basic skills in General Mechanics, Airframe Mechanics, Powerplant, or Structural Repair. Complete the General Mechanics concentration by taking classes exclusively on weekdays or in a combination of weekdays and evenings. All other concentrations can be completed by taking classes in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTAVIATIONA.pdf>

**Location:** Desert Vista Campus

**Department/Contact Information:**

Dean: 206-5250

Lead Faculty: 206-5910

Program/Major/Concentration Codes: **CRTAVIATIONA/AVA/\*\*\*\*** (see concentration codes below)

**Program Prerequisites**

Students must have completed the following prerequisites (with grades posted) before they may begin the application process.

REA 091 with a grade of C or better or Reading assessment at REA 112 or better.....	0-4
MAT 086 with a grade of C or better or Math assessment at MAT 092 or higher.....	0-3
<b>Subtotal .....</b>	<b>0-7</b>

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

Complete one of the following concentrations:

**General Mechanics** (Concentration Code: AVMG)

GTM 105*	Applied Technical Mathematics (F-Sp).....	3
AVM 110	Aircraft Blueprint Reading (F-Su) .....	3
AVM 114	Regulatory Requirements (F-Su).....	3
AVM 202	Aviation Safety (F-Su).....	3
AVM 205	Motion Dynamics (F-Su).....	3
AVM 206	Materials and Processes (F-Su).....	3
AVM 207*	Weight and Balance (F-Sp-Su).....	3
AVM 208*	Basic Electricity (F-Su) .....	5
<b>Subtotal .....</b>		<b>26</b>

**Airframe Mechanics** (Concentration Code: AVMF)

AVM 105	Aircraft Sheetmetal Repair (F-Sp) .....	5
AVM 130*	Aircraft Composite Repair (F) .....	5
AVM 209*	Intermediate Electricity (F).....	5
AVM 218	Airframe Rigging and Landing Gear Systems (F-Sp).....	3
AVM 223	Hydraulic and Pneumatic Power (F).....	3
AVM 224	Atmospheric Controls (F).....	3
AVM 225	Fire, Ice, Rain, and Fuel Systems (F) .....	3
<b>Subtotal .....</b>		<b>27</b>

**Powerplant** (Concentration Code: AVMP)

AVM 226*	Engine Electrical Systems (F) .....	5
AVM 228*	Aircraft Propellers (F-Sp) .....	3
AVM 229*	Engine Support Systems (F-Sp) .....	3
AVM 232	Reciprocating Engine Overhaul (F) .....	5
AVM 233	Turbine Engines (F-Sp).....	5
AVM 234*	Engine Fuel Metering and Operation (F-Sp) .....	5
<b>Subtotal .....</b>		<b>26</b>

**Structural Repair** (Concentration Code: AVMS)

AVM 101*	Structural Repair I (F).....	4
AVM 102*	Structural Repair II (F).....	4
AVM 114	Regulatory Requirements (F-Su).....	3
AVM 150*	Structural Repair III (F).....	4
AVM 151*	Structural Repair IV (F) .....	4
AVM 203*	Structural Repair V (F).....	4
AVM 204*	Structural Repair VI (F) .....	4
<b>Subtotal .....</b>		<b>27</b>

**Total credits as displayed with program prerequisites .....** **26-34**

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

## Avionics Technician — Certificate for Direct Employment

Master the broad range of skills needed to work with aircraft electronics including GPS systems, autopilot, communication systems, and weather radar. Learn avionics installation, operating systems, troubleshooting and system integration. Complete this program by taking classes exclusively on weekdays.

### What can I do with this certificate?

**Career Options:** Seek entry-level positions in aircraft avionics, diagnostics, maintenance and repair.

**Academic Options:** Continue your studies by take additional courses toward the Aviation Technology AAS degree.

**More Information:** Review program costs, student debt, on-tme graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTAVN.pdf>

**Location:** Desert Vista Campus

**Department/Contact Information:**

Dean: 206-5250

Lead Faculty: 206-5910

Program/Major Codes: **CRTAVN/AVN**

### Program Prerequisites

Students must have completed the following prerequisites (with grades posted) before they may begin the application process.

REA 091 with a grade of C or better or Reading assessment at REA 112 or better.....	0-4
MAT 086 with a grade of C or better or Math assessment at MAT 092 or higher.....	0-3
<b>Subtotal .....</b>	<b>0-7</b>

### General Education Courses - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	3
Analysis and Critical Thinking Requirement.....	3
<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.

ATT 101*	Avionics Familiarization (F) .....	3
ATT 102*	Aircraft Electrical Systems (F) .....	3
ATT 103*	Basics of Avionics Installation (F) .....	3
ATT 104*	Operating Systems I, Communication and Navigation (F) .....	3
ATT 200*	Communication and Navigation Installation (F) .....	5
ATT 201*	Operating Systems II, GPS Navigation and Autopilot (F) .....	3
ATT 202*	GPS Navigation and Autopilot Installation (F) .....	5
ATT 203*	Avionics Test Equipment (F).....	3
ATT 204*	Glass Cockpit Installer (Sp).....	5
ATT 205*	Operating Systems III, Infrared and Weather Radar (Sp) .....	3
ATT 206*	Infrared and Weather Radar Installation (Sp) .....	5
<b>Subtotal .....</b>	<b>41</b>	
<b>Total credits as displayed with program prerequisites .....</b>	<b>47-54</b>	

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

# Behavioral Health Services

Learn to work in a clinical behavioral health care setting and deliver basic behavioral health services. This program includes training within laboratory and clinical settings. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

**Before enrolling in this program**, students must take the Compass assessment and must achieve the following scores:

- Reading: 60
- Math/Algebra: 30
- Writing: 45

## Behavioral Health Services — Certificate for Direct Employment

### What can I do with this certificate?

**Career Options:** Seek an entry-level position or career advancement as a behavioral health specialist, human services technician, family advocate, or paraprofessional analyst in hospitals, behavioral health clinics, nursing care facilities, or nonprofit agencies.

**Academic Options:** Complete the additional courses needed to pursue a Social Services certificate or a Social Services degree.

**Location:** Desert Vista Campus

**Department/Contact Information:**  
Dean: 206-5142

Program/Major Codes: **CRTBHS/BHS**

Course Number	Course Title	Credit Hours
<b>Required Core Course - A grade of C or better is required for graduation.</b>		
BHS 132	Communication Skills in Behavioral Health Services (F-Sp-Su) .....	3
BHS 154*	Behavioral Health Lab and Safety Protocol (F-Sp-Su).....	3
BHS 172	Clinical Behaviors (F-Sp-Su) .....	3
BHS 189LC*	Behavioral Health Clinic - Basic (F-Sp-Su) .....	1
BHS 250*	Case Documentation (F-Sp-Su) .....	2
SSE 128	Introduction to Behavioral Health (n/o) .....	3
SSE 204*	Counseling in a Multicultural Setting (F) .....	3
<b>Total credits as displayed.....</b>		<b>18</b>

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

# 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 or an advisor to plan their course of study using the appropriate transfer guide.

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## *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

**Contact Information:** Contact any campus Student Services office ([www.pima.edu/mhtml/email/advising](http://www.pima.edu/mhtml/email/advising)).

# 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 by taking classes in combination of weekdays and evenings.

## 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.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTBIOTECH.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6763

Lead Faculty: 206-6810

Program/Major Codes: **CRTBIOTECH/BTE**

### Program Prerequisites

Before enrolling in this program, you must complete the following courses:

MAT 122*	or higher, or placement into MAT 151 or higher.....	0-3
BIO 181IN*	General Biology I: Majors.....	4
CHM 151*/151LB* or 151IN*	General Chemistry I.....	5
<b>Subtotal</b>		<b>9-12</b>

Course Number	Course Title	Credit Hours
<b>Required Core Course - A grade of C or better is required for graduation.</b>		
BIO 206	Biotechnology Instrumentation I (F).....	4
BIO 207*	Biotechnology Instrumentation II (Sp).....	4
BIO 299*	Co-op: Biotechnology (F-Sp-Su).....	1
BIO 299WK*	Co-op Work: Biotechnology (F-Sp-Su).....	3
CHM 152*/152LB* or 152IN*	General Chemistry II (F-Sp-Su) SUN# CHM 1152.....	5
CHM 235*/235LB* or 235IN*	General Organic Chemistry I (F-Sp-Su) SUN# CHM 2235.....	5
CHM 236*/236LB* or 236IN*	General Organic Chemistry II (F-Sp-Su) SUN# CHM 2236.....	5
<b>Subtotal</b>		<b>27</b>
<b>Total credits as displayed with program prerequisites</b>		<b>36-39</b>

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

\*\* This course may 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, and construction management. 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 by taking classes exclusively on weekdays, exclusively on evenings/weekends, or in a combination of weekdays and evenings/weekends.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTBLDGCON-B.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7143

Program/Major Codes: **CRTBLDGCON-B/BCB**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for BCT (F-Sp-Su) .....	1
BCT 111	Basic Safety for the Building Trades (F-Sp-Su).....	1
BCT 112**	Construction Mathematics, Communication, and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su).....	1
BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su).....	1
<b>Subtotal</b> .....		<b>6</b>
<b>Required Support Courses</b>		
GTM 105*	Applied Technical Mathematics (F-Sp).....	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, or carpentry. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTBLDGCON-A.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7143

Program/Major/Concentration Codes: **CRTBLDGCON-A/BCA/\*\*\*\*** (see concentration codes below)

### General Education Courses - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	3
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.

BCT 100*	Professionalism in Service for BCT (F-Sp-Su) .....	1
BCT 111	Basic Safety for the Building Trades (F-Sp-Su).....	1
BCT 112**	Construction Mathematics, Communication and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su).....	1
BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su).....	1
<b>Subtotal .....</b>	<b>6</b>	

### Required Support Courses

CSA 100*	Computer Literacy (F-Sp-Su).....	1
GTM 105*	Applied Technical Mathematics (F-Sp).....	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.

Complete one of the following concentrations:

Department chair or faculty advisor approval is recommended in the selection of the Concentration. .... 15-16

**Carpentry** (Concentration Code: BCTC)

BCT 101	Principles of Construction (F-Sp) .....	3
BCT 120*	Blueprint Reading for Construction (F-Sp) .....	3
BCT 145*	Carpentry I (F-Sp-Su) .....	4
BCT 146	Woodworking I (F).....	3
BCT 147*	Woodworking II (Sp).....	3
<b>Subtotal .....</b>	<b>16</b>	

**Facilities Maintenance** (Concentration Code: BCTF)

BCT 104*	Introduction to Equipment Maintenance (F-Sp-Su) .....	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-Su).....	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-Su) .....	4
BCT 172*	Electrical I (F-Sp-Su) .....	4
<b>Subtotal</b> .....		<b>16</b>

#### Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R) (Concentration Code: BCTH)

BCT 104*	Introduction to Equipment Maintenance (F-Sp-Su) .....	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-Su).....	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-Su) .....	4
BCT 133*	Residential and Industrial HVAC II (F-Sp-Su) .....	4
<b>Subtotal</b> .....		<b>16</b>

#### Electrical (Concentration Code: BCTE)

BCT 135*	National Electrical Code Residential Wiring Applications (F-Sp-Su) .....	4
BCT 172*	Electrical I (F-Sp-Su) .....	4
BCT 173*	Electrical II (F-Sp-Su) .....	4
BCT 174*	Electrical III (F-Sp-Su).....	4
<b>Subtotal</b> .....		<b>16</b>

#### Plumbing (Concentration Code: BCTP)

BCT 106*	Soldering and Brazing for BCT (F-Sp-Su).....	4
BCT 120*	Blueprint Reading for Construction (F-Sp) .....	3
BCT 181*	Residential and Industrial Plumbing I (F-Sp-Su).....	4
BCT 182*	Residential and Industrial Plumbing II ( F-Sp-Su).....	4
<b>Subtotal</b> .....		<b>15</b>
<b>Total credits as displayed</b> .....		<b>32-33</b>

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

‡ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* May be taken for credit by examination.

## Cabinetmaking — Certificate for Direct Employment

Get started in cabinetmaking and furniture construction. Courses cover tools, safety, cabinetmaking fundamentals, finishing techniques, and furniture design and construction. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Apply for positions as a cabinetmaker, furniture builder, or start your own business.

**Academic Options:** Continue your studies by pursuing the Building and Construction Technologies AAS degree with a concentration in cabinetmaking.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCМК.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

**Lead Faculty:** 206-7143

Program/Major Codes: **CRTCМК/CMK**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for BCT (F-Sp-Su) .....	1
BCT 111	Basic Safety for the Building Trades (F-Sp-Su).....	1
BCT 112**	Construction Mathematics, Communication, and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su).....	1

BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su).....	1
BCT 146	Woodworking I (F).....	3
BCT 147*	Woodworking II (Sp).....	3
BCT 148*	Cabinetmaking I (n/o).....	3
BCT 149*	Cabinetmaking II (n/o).....	3
BCT 153	Finishing Techniques in Cabinet and Furniture Making (Sp) .....	3
BCT 159*	Furniture Design and Construction (Sp) .....	3
<b>Subtotal</b> .....		<b>24</b>

### Required Support Courses

CAD 101	Computer Aided Drafting (F-Sp).....	4
<b>Subtotal</b> .....		<b>4</b>
<b>Total credits as displayed</b> .....		<b>28</b>

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

\*\* May be taken for credit by examination.

## Home Maintenance and Repair: Minor Home Improvements — Certificate for Direct Employment

Learn to perform home improvements while preparing to take the Arizona Contractor Business Management (C-62 Minor Home Improvements) examination. Complete this program by taking classes exclusively in the evenings.

### What can I do with this certificate?

**Career Options:** After acquiring the C-62 Minor Home Repair license, contract with home owners to perform home improvement projects up to \$2,500 per project.

**Academic Options:** Continue your studies by taking classes toward the Building and Construction Trades advanced certificate or associates degree with a possible concentration in Facilities Maintenance.

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7143

Program/Major Codes: **CRTMHI/MHI**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for BCT (F-Sp-Su) .....	1
BCT 111	Basic Safety for the Building Trades (F-Sp-Su).....	1
BCT 112**	Construction Mathematics, Communication, and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su).....	1
BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su).....	1
BCT 202	Construction Business Management (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.

\*\* May be taken for credit by examination.

## Home Maintenance and Repair: Limited Remodeling and Repair — Certificate for Direct Employment

Master the skills needed for home remodeling and repair while preparing for the Arizona Contractor Business Management (C-61 Limited Remodeling and Repair) examination. Complete this program by taking classes exclusively in the evenings.

### What can I do with this certificate?

**Career Options:** After acquiring the C-61 Limited Remodeling and Repair license, contract with home owners to perform home improvement projects up to \$25,000 including scope of work allowed under the C-7 carpentry classification.

**Academic Options:** Continue your studies by taking classes toward the Building and Construction Trades advanced certificate or associates degree with a possible concentration in Facilities Maintenance or Carpentry.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTLRR.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7143

Program/Major Codes: **CRTLRR/LRR**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for BCT (F-Sp-Su) .....	1
BCT 101	Principles of Construction (F-Sp) .....	3
BCT 102	Building Materials (F-Sp) .....	3
BCT 111	Basic Safety for the Building Trades (F-Sp-Su) .....	1
BCT 112**	Construction Mathematics, Communication, and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su) .....	1
BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su) .....	1
BCT 120*	Blueprint Reading for Construction (F-Sp) .....	3
BCT 202	Construction Business Management (F-Sp) .....	3
<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.

## Home Maintenance and Repair: General Residential Contractor — Certificate for Direct Employment

Learn advanced home construction skills while preparing for the Arizona Contractor Business Management (B – General Residential Contractor) examination. Complete this program by taking classes in a combination of evenings and weekends.

### What can I do with this certificate?

**Career Options:** After acquiring the B – General Residential Contractor license, perform home construction as a General Building Contractor capable of working on any part of a residence with the exception of some specialized areas such as electrical and plumbing.

**Academic Options:** Continue your studies by taking classes toward the Building and Construction Trades advanced certificate or associates degree with a possible concentration in Construction Management, Carpentry or Facilities Maintenance.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTGRC.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7143

Program/Major Codes: **CRTGRC/GRC**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for BCT (F-Sp-Su) .....	1
BCT 101	Principles of Construction (F-Sp) .....	3
BCT 102	Building Materials (F-Sp) .....	3
BCT 111	Basic Safety for the Building Trades (F-Sp-Su) .....	1
BCT 112**	Construction Mathematics, Communication, and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su) .....	1
BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su) .....	1
BCT 120*	Blueprint Reading for Construction (F-Sp) .....	3
BCT 123	Concrete/Masonry (Sp) .....	3
BCT 145*	Carpentry I (F-Sp-Su) .....	4
BCT 202	Construction Business Management (F-Sp) .....	3
BCT 286*	International Residential Code (IRC) I (F) .....	3
<b>Total credits as displayed.....</b>		<b>28</b>

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

\*\* May be taken for credit by examination.

## Solar Installer — Certificate for Direct Employment

Learn the skills necessary to become a successful Solar Installer. Designed for individuals with building trades experience, this certificate provides Photovoltaic Installer preparation training for the North American Board of Certified Energy Practitioners (NABCEP) Photovoltaic Installer Certification exam and the Photovoltaic Installer Advanced Certification exam. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

**Before enrolling in this program,** you must test higher than REA 091 on the PCC assessment, or complete REA 091 with a grade of C or better.

### What can I do with this certificate?

**Career Options:** Obtain employment in the solar installation field.

**Academic Options:** Continue your studies by completing the Building and Construction Technologies AAS degree.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTSIC.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7143

Program/Major Codes: **CRTSIC/SIC**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BCT 100	Professionalism in Service for Building and Construction Technologies (F-Sp-Su) .....	1
BCT 111	Basic Safety for the Building Trades (F-Sp-Su) .....	1
BCT 112*	Construction Mathematics, Communication, and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su) .....	1
BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su) .....	1
BCT 135*	National Electric Code Electrical Wiring Applications (F-Sp-Su) .....	4
BCT 172*	Electrical I (F-Sp-Su) .....	4
SLR 101	Basic Photovoltaic Installation (F-Sp-Su) .....	3
SLR 102	Advanced Photovoltaic Installation (Sp) .....	3
SLR 130	Solar Hot Water Systems .....	4
<b>Total credits as displayed.....</b>		<b>24</b>

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

\*\* May be taken for credit by examination.

## Building and Construction Technologies — Associate of Applied Science Degree for Direct Employment

Learn advanced construction skills. Choose from the eight concentrations listed below. Complete the Building Management and the Cabinetmaking concentrations by taking classes exclusively in the evenings or in a combination of weekdays and evenings. All other concentrations can be completed by taking classes in a combination of weekdays and evenings.

**Before enrolling in this program**, 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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)) to determine which universities offer BAS programs, and research how the universities may accept this program in transfer.

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7143

Program/Major/Concentration Codes: **AASBLDGCONST/BCT/\*\*\*\*** (see concentration codes below)

### General Education Courses - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	3
GTM 105 fulfills 3 credits in the Mathematics category. Complete a course from the Science or Critical Thinking category.	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	†
CSA 100 fulfills this requirement.	
Special Requirements	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<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.

BCT 100	Professionalism in Service for BCT (F-Sp-Su) .....	1
BCT 111	Basic Safety for the Building Trades (F-Sp-Su).....	1
BCT 112**	Construction Mathematics, Communication and Employability (F-Sp-Su) .....	1
BCT 113**	Hand and Power Tools (F-Sp-Su).....	1
BCT 114**	Blueprint Reading (F-Sp-Su) .....	1
BCT 115**	Basic Rigging (F-Sp-Su).....	1
<b>Subtotal .....</b>	<b>6</b>	

### Required Support Courses

CSA 100*	Computer Literacy (F-Sp-Su).....	1
GTM 105*	Applied Technical Mathematics (F-Sp).....	3
BCT Technical Electives: .....	3	
Complete 3 credit hours of BCT course work with the approval of the department chair or faculty advisor		
<b>Subtotal .....</b>	<b>7</b>	

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

Complete one of the following concentrations: .....32-36  
 Department chair or faculty advisor approval is recommended in the selection of the program option.

**Building Management** (Concentration Code: BCTB)

ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201 .....	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-Su) .....	3
CSA 110*	Spreadsheets: Microsoft Excel (F-Sp-Su) .....	3
IDE 111*	Fundamentals of Interior Design (Sp) .....	3
MGT 122*	Supervision (F-Sp) .....	3
Technical Electives: .....		12
Complete 12 credit hours from the following list with the approval of the department chair or faculty advisor BCT, CAD, and IDE		
<b>Subtotal</b> .....		<b>33</b>

**Cabinetmaking** (Concentration Code: BCTK)

BCT 145*	Carpentry I (F-Sp-Su) .....	4
BCT 146	Woodworking I (F) .....	3
BCT 147*	Woodworking II (Sp) .....	3
BCT 148*	Cabinetmaking I (n/o) .....	3
BCT 149*	Cabinetmaking II (n/o) .....	3
BCT 153	Finishing Techniques in Cabinet and Furniture Making (F) .....	3
BCT 159*	Furniture Design and Construction (Sp) .....	3
CAD 101	Computer Aided Drafting I (F-Sp) .....	4
Technical Electives .....		6
Complete 6 credits from BCT, CAD, IDE		
<b>Subtotal</b> .....		<b>32</b>

**Carpentry** (Concentration Code: BCTC)

BCT 101	Principles of Construction (F-Sp) .....	3
BCT 120*	Blueprint Reading for Construction (F-Sp) .....	3
BCT 123	Concrete/Masonry (Sp) .....	3
BCT 145*	Carpentry I (F-Sp-Su) .....	4
BCT 146	Woodworking I (F) .....	3
BCT 147*	Woodworking II (Sp) .....	3
BCT 245*	Carpentry II (n/o) .....	4
BCT 286*	International Residential Code (IRC) I (F) .....	3
BCT 287*	International Residential Code (IRC) II (Sp) .....	3
Technical Electives .....		3
Complete 3 credits from BCT, CAD, IDE		
<b>Subtotal</b> .....		<b>32</b>

**Construction Management** (Concentration Code: BCTM)

ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201 .....	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 (F-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) .....	4
MGT 122*	Supervision (F-Sp) .....	3
<b>Subtotal</b> .....		<b>34</b>



**Facilities Maintenance** (Concentration Code: BCTF)

BCT 104*	Introduction to Equipment Maintenance (F-Sp-Su)	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-Su)	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-Su)	4
BCT 133*	Residential and Industrial HVAC II (F-Sp-Su)	4
BCT 134*	Residential and Industrial HVAC III (F-Sp-Su)	4
BCT 145*	Carpentry I (F-Sp-Su)	4
BCT 150*	Plumbing Basics (F-Sp-Su)	4
BCT 172*	Electrical I (F-Sp-Su)	4
<b>Subtotal</b>		<b>32</b>

**Electrical** (Concentration Code: BCTE)

BCT 135*	National Electrical Code Residential Wiring Applications (F-Sp-Su)	4
BCT 172*	Electrical I (F-Sp-Su)	4
BCT 173*	Electrical II (F-Sp-Su)	4
BCT 174*	Electrical III (F-Sp-Su)	4
BCT 184*	National Electrical Code I (F-Sp-Su)	3
BCT 271*	Electrical IV (F-Sp-Su)	4
BCT 272*	Electrical V (F-Sp-Su)	4
BCT 273*	Electrical VI (F-Sp-Su)	4
BCT 274*	Electrical VII (F-Sp-Su)	4
<b>Subtotal</b>		<b>35</b>

**Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R)** (Concentration Code: BCTH)

BCT 104*	Introduction to Equipment Maintenance (F-Sp-Su)	4
BCT 106*	Soldering and Brazing for BCT (F-Sp-Su)	4
BCT 132*	Residential and Industrial HVAC I (F-Sp-Su)	4
BCT 133*	Residential and Industrial HVAC II (F-Sp-Su)	4
BCT 134*	Residential and Industrial HVAC III (F-Sp-Su)	4
BCT 231*	Residential and Industrial HVAC IV (F-Sp-Su)	4
BCT 232*	Residential and Industrial HVAC V (F-Sp-Su)	4
BCT 233*	Residential and Industrial HVAC VI (F-Sp-Su)	4
BCT 234*	Residential and Industrial HVAC VII (F-Sp-Su)	4
<b>Subtotal</b>		<b>36</b>

**Plumbing** (Concentration Code: BCTP)

BCT 106*	Soldering and Brazing for BCT (F-Sp-Su)	4
BCT 120*	Blueprint Reading for Construction (F-Sp)	3
BCT 181*	Residential and Industrial Plumbing I (F-Sp-Su)	4
BCT 182*	Residential and Industrial Plumbing II (F-Sp-Su)	4
BCT 183*	Residential and Industrial Plumbing III (F-Sp-Su)	4
BCT 236*	Residential and Industrial Plumbing IV (F-Sp-Su)	4
BCT 237*	Residential and Industrial Plumbing V (F-Sp-Su)	4
BCT 238*	Residential and Industrial Plumbing VI (F-Sp-Su)	4
BCT 239*	Residential and Industrial Plumbing VII (F-Sp-Su)	4
<b>Subtotal</b>		<b>35</b>

**Solar Installer** (Concentration Code: BCTI)

BCT 135*	National Electric Code Residential Wiring Applications (F-Sp-Su)	4
BCT 172*	Electrical I (F-Sp-Su)	4
BCT 202	Construction Business Management (F-Sp)	3
BCT 265	Sustainability in Construction Installation (F-Sp)	3
SLR 101	Beginning Photovoltaic Installation (F)	3
SLR 102	Advanced Photovoltaic Installation (Sp)	3
SLR 130	Solar Hot Water Systems (Sp)	4
Electives		8
<b>Subtotal</b>		<b>32</b>

**Total credits as displayed**..... **60-64**

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* May be taken for credit by examination.

## Business Careers

- Business
- Customer Service Management
- Fashion Merchandising and Retail Management
- International Business Studies
- Logistics and Supply Chain Management

## 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 evenings, or in a combination of weekdays and evenings.

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

**Career Options:** Entry-level business operations.

**Academic Options:** Continue your studies with the Advanced Business Certificate program.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTBUSINES-B.pdf>

**Locations:** All campuses.

**Department/Contact Information:**

Dean: 206-7694

Lead Faculty: 206-7691

Program/Major Codes: **CRTBUSINES-B/BUB**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BUS 100	Introduction to Business (F-Sp-Su).....	3
BUS 151*	Mathematics of Business (F-Sp-Su).....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
<b>Total credits as displayed.....</b>		<b>9</b>
<b>Required Support Courses</b>		
ACC 100	Practical Accounting Procedures (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
or WRT 154*	Career Communications (Sp).....	3
Electives - Complete 1-3 credit hours from the following list: .....		1-3
ACC, BUS, CIS, CSA, ECN, FIN, MGT, MKT		
<b>Subtotal .....</b>		<b>7-9</b>
<b>Total credits as displayed.....</b>		<b>16-18</b>

\* 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 evenings, or in a combination of weekdays and evenings.

### 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:**

Dean: 206-7694

Lead Faculty: 206-7691

Program/Major Codes: **CRTBUSINES-A/BUA**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 or 154 fulfills this requirement.	
Analysis and Critical Thinking Requirement.....	0-3
BUS 151 (only if taken after Spring 2008) fulfills this requirement.	
<b>Subtotal .....</b>	<b>0-3‡</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

BUS 100	Introduction to Business (F-Sp-Su).....	3
BUS 151*	Mathematics of Business (F-Sp-Su).....	3
BUS 220	Legal Environment of Business (F-Sp-Su).....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
<b>Subtotal .....</b>		<b>12</b>

### Required Support Courses

ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201.....	3
ACC 102*	Managerial Accounting (F-Sp-Su) SUN# ACC 2202.....	3
CSA 101*	Computer Fundamentals (F-Sp-Su).....	3
MGT 280*	Business Organization and Management (F-Sp).....	3
MKT 111	Principles of Marketing (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or 154*	Career Communications (Sp).....	3
<b>Subtotal .....</b>		<b>18</b>
<b>Total credits as displayed.....</b>		<b>30-33</b>

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

‡ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

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

Learn basic business principles and specialize in marketing, management or tourism. Students planning to transfer to a four-year university should pursue the Associate of Business Administration. Complete the Management concentration by taking classes exclusively in the evenings or in a combination of weekdays and evenings. Complete the Marketing concentration with a combination of weekday and evenings classes. Complete the Travel concentration with a combination of online and weekday and/or evening classes.

### 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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Locations:** Management concentration at the East and West Campuses; Marketing concentration at the West Campus; Tourism concentration at the East Campus

**Department/Contact Information:**

Dean: 206-7694

Lead Faculty: 206-7691

Program/Major/Concentration Codes: **AASBUSINESS/BUS/\*\*\*\*** (see concentration codes below)

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	3
WRT 101 or 154 fulfills 3 credits of this requirement. Complete an appropriate course from the pairs listed in the Communication category.	
Analysis and Critical Thinking Requirement.....	3-6
BUS 151 (only if taken after Spring 2008) fulfills 3 credits in the Mathematics category. Complete a course from the Science or Critical Thinking category.	
Humanities and Social Science Requirement .....	3
ECN 201 or 202 fulfills 3 credits of the Social Science category. Complete a course from the Humanities/Fine Arts or Leadership/Ethics category.	
Computer and Information Literacy Requirement .....	†
CSA 101 fulfills this requirement.	
Special Requirements	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>9-12†</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-Su).....	3
BUS 151*	Mathematics of Business (F-Sp-Su).....	3
BUS 220	Legal Environment of Business (F-Sp-Su) .....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
<b>Subtotal .....</b>		<b>12</b>

### Required Support Courses

ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201.....	3
ACC 102*	Managerial Accounting (F-Sp-Su) SUN# ACC 2202 .....	3
CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
ECN 201*	Microeconomic Principles (F-Sp-Su) SUN# ECN 2202	
or ECN 202*	Macroeconomic Principles (F-Sp-Su) SUN# ECN 2201 .....	3
MGT 280*	Business Organization and Management (F-Sp).....	3
MKT 111	Principles of Marketing (F-Sp-Su) .....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or WRT 154*	Career Communications (Sp) .....	3
Electives: Select 6 credits hours from the following list: .....		6
ACC, BUS, CIS, CSA, ECN, FIN, MGT, MKT		
<b>Subtotal .....</b>		<b>27</b>

**Core Concentrations: - A grade of C or better is required for graduation.**

Complete one of the following concentrations: ..... 12  
 Select a minimum of 12 credit hours from one concentration: Department faculty advisor or counselor approval is recommended in the selection of the program concentration and courses within the concentration.

**Management Concentration** (Concentration Code: BUSM)

MGT 122	Supervision (F-Sp) .....	3
MGT 124	Small Business Management (F-Sp-Su) .....	3
MGT 270*	Computer Applications for Managers (F-Sp) .....	3
MGT 276*	Human Resources (Sp) .....	3
<b>Subtotal</b>	.....	<b>12</b>

**Marketing Concentration** (Concentration Code: BUSK)

DAR 120	Applied Computer Graphics (F-Sp-Su) .....	4
MKT 113	Salesmanship (Sp) .....	3
MKT 125	Advertising (F-Sp) .....	3
MKT 139	Retailing (F-Sp) .....	3
MKT 196*	Independent Study in Marketing and Business (n/o) .....	3
<b>Subtotal</b>	.....	<b>16</b>

**Tourism Concentration** (Concentration Code: BUST)

TVL 101	Introduction to the Travel Industry (F-Sp-Su) .....	3
TVL 102	Computerized Reservation Systems I (F-Sp-Su) .....	3
or TVL 109	Survey of Leisure Products (F-Sp-Su)	
or TVL 211	Tour Direction and Tour Group Management (F-Sp-Su)	
TVL 103	Geography for the Tourism Professional (F-Sp-Su) .....	3
TVL 121	Tourism Sales and Marketing (F-Sp-Su) .....	3
<b>Subtotal</b>	.....	<b>12</b>
<b>Total credits as displayed</b>	.....	<b>60-63</b>

† Core or support course(s) fulfill this requirement.  
 ‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.

**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 evenings, or in a combination of weekdays and evenings.

**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 bachelor’s degree.
- Locations:** All campuses
- Contact Information:** Contact any campus Student Services office ([www.pima.edu/mhtml/email/advising](http://www.pima.edu/mhtml/email/advising)).
- Program/Major Codes: **AOBBUSIADMIN/BUD**

**Arizona General Education Curriculum Requirement (AGEC-B) - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	6
Biological and Physical Sciences .....	8
Mathematics .....	†

MAT 212 or 220 fulfills this requirement.

Social and Behavioral Sciences .....	3
ECN 201 or 202 fulfills 3 credits of this requirement. Complete a non-ECN course from this category.	
Other Requirements.....	†
CIS 100 and either MAT 172 or 231 fulfill this requirement.	
Special Requirements	
The I, C, and G requirements should be fulfilled by selecting appropriate courses in the above categories.	
<b>Subtotal .....</b>	<b>23¥</b>

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-Su) SUN# ACC 2201 .....	3
ACC 102*	Managerial Accounting (F-Sp-Su) SUN# ACC 2202 .....	3
BUS 205*	Statistical Methods in Economics and Business (F-Sp-Su).....	3
BUS 220	Legal Environment of Business (F-Sp-Su) .....	3
CIS 100	Introduction to Computers (F-Sp-Su).....	3
ECN 201*	Microeconomic Principles (F-Sp-Su) SUN# ECN 2201 .....	3
ECN 202*	Macroeconomic Principles (F-Sp-Su) SUN# ECN 2201 .....	3
MAT 144*	College Algebra with Data Analysis (F-Sp)	
or MAT 151*	College Algebra (F-Sp-Su) SUN# MAT 1151 .....	4
(MAT 144 or 151 may be substituted by another transferable course if the student has tested above MAT 151 or completed a College MAT course numbered higher than 151 with a grade C or better.)		

Business Math Requirement:.....6-7  
 Please note: The UA accepts both options. ASU will only accept the combination of MAT 220 and 231, or MAT 212 and an additional Math course at ASU. The NAU BSBA program in Flagstaff only requires MAT 172, while their BBA program through the Extended Campus requires MAT 212 and either MAT 151 or 172. But any transfer students who want to earn a Pima ABUS degree still need one of the two combinations listed below.

MAT 172*§	Finite Mathematics (F-Sp-Su)
and 212*	Topics in Calculus (F-Sp-Su)
OR	
MAT 220*	Calculus I (F-Sp-Su)
and 231*	Calculus II F-Sp-Su)

Business Administration Electives.....6-9

See an advisor to complete the appropriate number of transferable electives so the program total is 60–64 credits. Transfer courses (check the Course Equivalency Guide online) from the following business prefixes are recommended: ACC, BUS, CIS, FIN, MGT, MKT, PAD, or language courses.

<b>Subtotal .....</b>	<b>37-41</b>
<b>Total credits as displayed.....</b>	<b>60-64</b>

† 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 course has a prerequisite, co-requisite, or recommendation. See course description section.  
 § Another course may be available for UA transfer students in the future – check the online program display for the most current options.

# Customer Service Management

## Customer Service Management — Certificate for Direct Employment

Gain the knowledge and skills to excel as a customer service representative or manager. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Advance in a career as a customer service representative in the business industry.

**Academic Options:** Continue your studies by working toward additional degrees and certificates in business.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCSV.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7046

Lead Faculty: 206-7046

Program/Major Codes: **CRTCSV/CSV**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
BUS 100 or MGT 122	Introduction to Business (F-Sp-Su) Supervision (F-Sp) .....	3
CSA 100*	Computer Literacy (F-Sp-Su) .....	1
MGT 110	Human Relations in Business and Industry (F-Sp) .....	3
MGT 130*	Retail Analysis (Sp) .....	3
MKT 100	Customer Service Skills (F) .....	3
SPE 120 or WRT 154*	Business and Professional Communication (F-Sp-Su) Career Communications (Sp) .....	3
<b>Total credits as displayed .....</b>		<b>16</b>

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

# Fashion Merchandising and Retail Management

## Fashion Consumer Sciences — Certificate for Direct Employment

Prepare for an exciting career in fashion marketing, merchandising, buying, and sales promotion. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Advance your career in fashion merchandising to become a supervisor or buyer.

**Academic Options:** Continue your studies with a degree in fashion merchandising.

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7046

Lead Faculty: 206-7206

Program/Major Codes: **CRTBFA/BFA**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CIS 100	Introduction to Computers (F-Sp-Su).....	3
MGT 110	Human Relations in Business and Industry (F-Sp)	
or MKT 105	Retail Math.....	3
MGT 130*	Retail Analysis (Sp) .....	3
MKT 100	Customer Service Skills (F) .....	3
MKT 111	Principles of Marketing (F-Sp-Su) .....	3
MKT 139	Retailing (F-Sp) .....	3
MKT 140	Fashion Merchandising (Sp) .....	3
MKT 240*	Fashion Merchandising Planning and Control (Sp).....	4
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or WRT 154*	Career Communications (Sp) .....	3
<b>Total credits as displayed.....</b>		<b>28</b>

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

## Fashion Consumer Sciences - Associate of Applied Science

Learn the skills needed to succeed in fashion sales and apparel merchandising. Student planning to transfer to a four year university should pursue the Retail Management Associate of Arts degree. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Start a career or seek advancement as an apparel buyer, sales representative, manufacturing representative, apparel coordinator, display specialist or department manager.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7046

Lead Faculty: 206-7206

Program/Major Codes: **AASBFM/BFM**



**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....†	
WRT 101 or 154, and SPE 120 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....3-6	
BUS 151 (only if taken after Spring 2008) fulfills 3 credits of this requirement. Complete a Science or Critical Thinking course.	
Humanities and Social Science Requirement .....†	
ART 100 and either BUS 148 or MGT 230 fulfill this requirement.	
Computer and Information Literacy Requirement .....†	
CSA 100 fulfills this requirement.	
Special Requirements	
SPE 120 fulfills this requirement	
<b>Subtotal .....</b>	<b>3-6‡</b>

<b>Course Number</b>	<b>Course Title</b>	<b>Credit Hours</b>
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**Required Core Courses - A grade of C or better is required for graduation.**

BUS 125	eCommerce (F-Sp-Su).....	3
BUS 151*	Mathematics of Business (F-Sp-Su).....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
MGT 122	Supervision (F-Sp)	
or MGT 124	Small Business Management (F-Sp-Su).....	3
MGT 130*	Retail Analysis (Sp).....	3
MKT 100	Customer Service Skills (F).....	3
MKT 111	Principles of Marketing (F-Sp-Su).....	3
MKT 125	Advertising (Sp).....	3
MKT 139	Retailing (F-Sp).....	3
MKT 140	Fashion Merchandising (Sp).....	3
MKT 240*	Fashion Merchandising Planning and Control (Sp).....	4
Core Elective	.....	3
	Select 3 credits from the following list: BUS, FDC, MGT or MKT (MKT 290 is recommended)	
<b>Subtotal .....</b>		<b>37</b>

**Required Support Courses**

ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201.....	3
ART 100	Basic Design (F-Sp-Su).....	3
BUS 148	Ethics in the Workplace (F-Sp-Su)	
or MGT 230	Dynamics of Leadership (F-Sp).....	3
CSA 100*	Computer Literacy (F-Sp-Su).....	1
MKT 105	Retail Math (F).....	3
SPE 120	Business and Professional Communication (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or WRT 154*	Career Communications (Sp).....	3
Other Elective	.....	3
	Select 3 credits from the following list: BUS, FDC, MGT, MKT with department faculty approval	
<b>Subtotal .....</b>		<b>22</b>
<b>Total credits as displayed.....</b>		<b>62-65</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Retailing and Fashion Consumer Sciences - Associate Degree for Transfer

Jump start your retail management or fashion merchandising career by completing this degree and then transferring to a university retailing/merchandising degree or related program emphasizing various principles employed to manage the retail supply chain in order to satisfy consumers' needs. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Retail management personnel examine retail, marketing, fashion, and management principles that are applied across a broad spectrum of U.S. and global retail businesses including store, catalog, internet, services firms and other businesses that support these diverse retailers.

**Academic Options:** Transfer to the University of Arizona or other school to pursue a degree in retailing/merchandising or a related degree.

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7046

Lead Faculty: 206-7206

Program/Major Codes: **AOABFT/BFT**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	3
ART 100 meets 3 credits of this requirement. Complete a course from the Humanities list.	
Biological and Physical Sciences .....	8
Mathematics .....	†
MAT 212 fulfills this requirement.	
Social and Behavioral Sciences .....	3
ECN 201 fulfills 3 credits of this requirement. Complete a non-ECN course from the Social and Behavioral Sciences list.	
Other Requirements .....	†
CIS 100 and MAT 172 fulfill this requirement.	
Special Requirements	
The I, C, and G requirements should be fulfilled by selecting appropriate courses in the above categories.	
<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.

MGT 130*	Retail Analysis (Sp) .....	3
MKT 140	Fashion Merchandising (Sp) .....	3
MKT 240*	Fashion Merchandising Planning and Control (Sp).....	4
<b>Subtotal .....</b>		<b>10</b>

### Required Support Courses

ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201 .....	3
ACC 102*	Managerial Accounting (F-Sp-Su) SUN# ACC 2202 .....	3
ART 100	Basic Design (F-Sp-Su) .....	3
BUS 125	eCommerce (F-Sp-Su) .....	3
BUS 205*	Statistical Methods in Economics and Business (F-Sp-Su).....	3
CIS 100	Introduction to Computers (F-Sp-Su).....	3
ECN 201	Microeconomic Principles (F-Sp-Su) SUN# ECN 2201 .....	3
ECN 202	Macroeconomic Principles (F-Sp-Su) SUN# ECON 2202 .....	3
MAT 172	Finite Mathematics (F-Sp-Su) .....	3
MAT 212	Topics in Calculus (F-Sp-Su) .....	3
Electives: Complete 2-3 credit hours from the following list:.....		2-3
MKT 139 or STU 210		
<b>Subtotal .....</b>		<b>32-33</b>
<b>Total credits as displayed.....</b>		<b>62-63</b>

† 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 course has a prerequisite, co-requisite, or recommendation. See course description section.

## Retail Management — Certificate for Direct Employment

Learn the skills needed to succeed as a supervisor or manager in a retail business. This program meets the requirements of the Western Association of Food Chains (WAFC). Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

### What can I do with this certificate?

- Career Options:** Advance in your career as a retail manager or supervisor.
- Academic Options:** Continue your studies with other degrees and certificates in Business.
- More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTBFR.pdf>
- Location:** Downtown Campus
- Department/Contact Information:**  
Dean: 206-7046  
Lead Faculty: 206-7216  
Program/Major Codes: CRTBFR/BFR

Course Number	Course Title	Credit Hours
<b>General Education Requirements - A grade of C or better is required for graduation.</b>		
<i>Course lists for each General Education category listed below can be found starting on page 55.</i>		
Communication Requirement.....		†
WRT 101 or 154 fulfills this requirement.		
Analysis and Critical Thinking Requirement.....		0-3
BUS 151 (only if taken after Spring 2008) fulfills this requirement.		
<b>Subtotal .....</b>		<b>0-3¥</b>
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ACC 100	Practical Accounting Procedures (F-Sp-Su)	
or ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201.....	3
BUS 151*	Business Mathematics (F-Sp-Su) .....	3
CIS 100*	Introduction to Computers (F-Sp-Su) SUN# CIS 1120.....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
MGT 122*	Supervision (F-Sp)	
or MGT 280*	Business Organization and Management (F-Sp).....	3
MGT 276*	Human Resources (Sp).....	3
MKT 111	Principles of Marketing (F-Sp-Su) .....	3
MKT 139	Retailing (F-Sp) .....	3
SPE 120	Business and Professional Communication (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or WRT 154*	Career Communications (Sp) .....	3
<b>Subtotal .....</b>		<b>30</b>
<b>Total credits as displayed.....</b>		<b>30-33</b>

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

# International Business Studies

## International Business Management — Certificate for Transfer

This program is under review and may be inactivated.

# Logistics and Supply Chain Management

## Basic Logistics and Supply Chain Management — Certificate for Direct Employment

Get an introduction to logistics and transportation skills and principles. Complete this program by taking classes exclusively on evenings.

### What can I do with this certificate?

**Career Options:** Entry-level positions in logistics.

**Academic Options:** Continue your studies with the Logistics and Supply Chain Management Advanced Certificate program.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTLGC.pdf>

**Location:** East Campus

**Department/Contact Information:**  
 Dean: 206-7694

Program/Major Codes: **CRTLGC/LGC**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
LGM 101	Principles of Logistics and Supply Chain Management (F-Sp-Su) .....	3
LGM 102	Inventory Control (Sp-Su) .....	3
LGM 104	Computerized Logistics (Sp-Su) .....	3
LGM 105	Warehouse Management (F-Su).....	3
<b>Total credits as displayed.....</b>		<b>12</b>

### Required Support Courses

WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or WRT 154*	Career Communications (Sp) .....	3
LGM 109	Readiness Skills for Logistics Careers (Sp-Su) .....	1
Electives- Choose 3 credit hours from the following list: .....		3
LGM 106	Transportation and Traffic Management (F)	
LGM 108	International Logistics (Sp)	
<b>Subtotal .....</b>		<b>7</b>
<b>Total credits as displayed.....</b>		<b>19</b>

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

## Advanced Logistics and Supply Chain Management — Certificate for Direct Employment

Learn fundamental principles of and skills of logistics and transportation, inventory control, and warehouse management. Complete this program by taking classes exclusively on evenings/weekends.

### What can I do with this certificate?

**Career Options:** Entry-level positions in warehouse and transportation.

**Academic Options:** Continue your studies through the Logistics and Supply Chain Management AAS degree program.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTLGV.pdf>

**Location:** East Campus

**Department/Contact Information:**  
 Dean: 206-7694

Program/Major Codes: **CRTLGV/LGV**

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 or 154 fulfills this requirement.	
Analysis and Critical Thinking Requirement.....	3
<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.**

LGM 101	Principles of Logistics and Supply Chain Management (F-Sp-Su) .....	3
LGM 102	Inventory Control (F-Sp-Su) .....	3
LGM 104	Computerized Logistics (F-Sp-Su) .....	3
LGM 105	Warehouse Management (F-Sp-Su).....	3
<b>Subtotal .....</b>		<b>12</b>

**Required Support Courses**

LGM 106	Transportation and Traffic Management (F-Sp) .....	3
LGM 108	International Logistics (F-Sp).....	3
LGM 109	Readiness Skills for Logistics Careers (Sp-Su) .....	1
LGM 190*	Logistics and Supply Chain Internship (F-Sp-Su) .....	3
MGT 122*	Supervision (F-Sp) .....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or 154*	Career Communications (F-Sp).....	3
<b>Subtotal .....</b>		<b>16</b>
<b>Total credits as displayed.....</b>		<b>31</b>

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

‡ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Logistics and Supply Chain Management — Associate of Applied Science Degree for Direct Employment

Learn fundamental principles of logistics and transportation, as well as skills in inventory control, warehouse management, business, and supervision. Complete this program by taking classes exclusively on evenings.

### What can I do with this degree?

**Career Options:** Entry-level to supervisory-level positions in inventory control, transportation, and warehouse management.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** East Campus

**Department/Contact Information:**

Dean: 206-7694

Program/Major Codes: **AASLGM/LGM**

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	3
WRT 101 or 154 fulfills 3 credits of this requirement. Complete an appropriate course from the pairs listed in the Communication category.	
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	†
GEO 104 and MGT/STU 230 fulfill this requirement.	
Computer and Information Literacy Requirement .....	†
CSA 101 fulfills this requirement.	
Special Requirements	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>9‡</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
LGM 101	Principles of Logistics and Supply Chain Management (F-Sp-Su)	3
LGM 102	Inventory Control (Sp-Su)	3
LGM 103	Contracts and Freight Claims (Sp)	3
LGM 104	Computerized Logistics (Sp-Su)	3
LGM 105	Warehouse Management (F)	3
LGM 106	Transportation and Traffic Management (F)	3
LGM 107	Introduction to Purchasing (F)	3
LGM 108	International Logistics (Sp)	3
LGM 190*	Logistics and Supply Chain Internship (F-Sp-Su)	3
<b>Subtotal</b>		<b>27</b>
<b>Required Support Courses</b>		
BUS 100	Introduction to Business (F-Sp-Su)	3
BUS 125	eCommerce (F-Sp-Su)	3
CSA 101*	Computer Fundamentals (F-Sp-Su)	3
GEO 104	World Regional Geography (F-Sp)	3
MGT 122*	Supervision (F-Sp)	3
MGT/STU 230	Dynamics of Leadership (F-Sp)	3
WRT 101* or WRT 154*	Writing I (F-Sp-Su) SUN# ENG 1101 Career Communications (Sp)	3
Electives: Select 3 credits hours from the following list: ACC 100, BUS 148, 220, 250, CSA 110, MGT 130, 280		3
<b>Subtotal</b>		<b>24</b>
<b>Total credits as displayed</b>		<b>60</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## 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 or an advisor to plan their course of study using the appropriate transfer guide.

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### *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

**Contact Information:** Contact any campus Student Services office ([www.pima.edu/mhtml/email/advising](http://www.pima.edu/mhtml/email/advising)).



# Clinical Research Coordinator

## Clinical Research Coordinator — Certificate for Direct Employment

Learn to manage clinical research trials involving human subjects in classes taught by physicians and other clinical research professionals. Complete this program by taking classes exclusively in the evenings or a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Seek an entry-level position or career advancement in hospitals, medical centers, universities, or private research group.

**Academic Options:** Continue your studies and earn the Clinical Research Coordinator AAS degree.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCTC.pdf>

**Location:** Northwest Campus

**Department/Contact Information:**

Dean: 206-2216

Lead Faculty: 206-2153

Program/Major Codes: **CRTCTC/CTC**

### Program Prerequisites

Complete the following courses with a grade of "C" or better before enrolling in this program:

BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-Su).....	4
	(May be taken concurrently with CRC 101 with instructor or program coordinator permission.)	
CSA 101*	Computer Fundamentals (F-Sp-Su).....	§
<b>Subtotal</b>		<b>4</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 fulfills this requirement.	
Analysis and Critical Thinking Requirement.....	†
MAT 122 fulfills this requirement.	
<b>Subtotal</b> .....	<b>¥</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

CRC 101*	Foundations of Clinical Research (F).....	3
CRC 201*	Clinical Research Regulatory Compliance (F).....	3
CRC 230*	Introduction to Clinical Research Study Protocol (F).....	2
CRC 240*	Pharmacology for Clinical Trials (Sp).....	4
CRC 250*	Clinical Research Site Coordination and Management (Sp).....	3
CRC 260IN*	Lab Skills and Professional Practice (Sp).....	3
CRC 291*	Clinical Research Coordinator Internship (n/o).....	3
<b>Subtotal</b> .....		<b>21</b>

### Required Support Courses - A grade of C or better is required for graduation.

CSA 101*	Computer Fundamentals (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
MAT 122**	Intermediate Algebra (F-Sp-Su).....	3
SPE 120	Business and Professional Communication (F-Sp-Su).....	3
<b>Subtotal</b> .....		<b>12</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>37</b>

† Core or support classes fulfill this requirement.

¥ General education requires 6 credits. This subtotal shows the Gen Ed credits fulfilled by support classes.

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

\*\* MAT 122, 142, 144, 151, 182, 187, 220 may be substituted for MAT 122.

§ Credits counted below.

## Clinical Research Coordinator — Associate of Applied Science

Learn to manage clinical research trials involving human subject in classes taught by physicians and other clinical research professionals. Complete this program by taking classes exclusively in the evenings or a combination of weekdays and evenings.

### What can I do with this degree?

**Career Options:** Seek an entry-level position or career advancement in hospitals, medical centers, universities, or private research group.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Northwest Campus

**Department/Contact Information:**

Dean: 206-2216

Lead Faculty: 206-2153

Program/Major Codes: **AASCTC/CRC**

### Program Prerequisites

Complete the following courses with a grade of “C” or better before enrolling in this program:

BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-Su).....	\$
	(May be taken concurrently with CRC 101 with instructor or program coordinator permission.)	
MAT 122*	Intermediate Algebra (F-Sp-Su).....	\$
WRT 101*	Writing I (F-Sp-Su).....	\$
<b>Subtotal</b>	.....	<b>\$</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and either WRT 102 or SPE 120 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....	†
BIO 160IN and MAT 122 fulfill this requirement.	
Humanities and Social Science Requirement.....	6
Computer and Information Literacy Requirement.....	†
CSA 101 fulfills this requirement.	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<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.

CRC 101*	Foundations of Clinical Research (F).....	3
CRC 201*	Clinical Research Regulatory Compliance (F).....	3
CRC 230*	Introduction to Clinical Research Study Protocol (F).....	2
CRC 240*	Pharmacology for Clinical Trials (Sp).....	4
CRC 250*	Clinical Research Site Coordination and Management (Sp).....	3
CRC 260IN	Lab Skills and Professional Practice (Sp).....	3
CRC 270*	Research Management for Sponsors and CROs (n/o).....	3
CRC 291*	Clinical Research Coordinator Internship (n/o).....	3
<b>Subtotal</b> .....	.....	<b>24</b>

<b>Required Support Courses - A grade of C or better is required for graduation.</b>		
BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-Su) .....	4
CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
CSA 110	Spreadsheets: Microsoft Excel (F-SP-Su) .....	3
MAT 122**	Intermediate Algebra (F-Sp-Su).....	3
REA 112HP**	Critical Reading fro Health Professions (F-Sp) .....	4
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102* or SPE 120	Writing II (F-Sp-Su) SUN# ENG 1102 Business and Professional Communication (F-Sp-Su).....	3
Electives	.....	7
<b>Subtotal .....</b>		<b>30</b>
<b>Total credits as displayed with program prerequisites .....</b>		<b>60</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* MAT 142, 144, 151, 182, 187, 200 may be substituted for MAT 122. REA 112 may be substituted for REA 112HP.

§ Credits counted below.

## 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, exclusively evenings or in a combination of weekdays and evenings.

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

**Career Options:** Work as an entry-level drafter in manufacturing and construction industries.

**Academic Options:** Continue your studies by completing the advanced computer aided drafting certificate.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCONDRFT-B.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead faculty: 206-7252

Program/Major Codes: **CRTCONDRFT-B/CAB**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CAD 101	Computer Aided Drafting I (F-Sp).....	4

#### Required Support Courses

CAD: Complete 12 credit hours of CAD courses numbered 120 or higher with the approval of the department chair or faculty advisor.....	12
<b>Total credits as displayed.....</b>	<b>16</b>

### 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 evenings, or in a combination of weekdays and evenings.

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

**Career Options:** Apply for advanced drafting positions.

**Academic Options:** Pursue an associate degree in computer aided drafting.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCONDRFT-A.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead faculty: 206-7252

Program/Major Codes: **CRTCONDRFT-A/CAA**

#### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

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>		
CAD 101	Computer Aided Drafting I (F-Sp).....	4
<b>Required Support Courses</b>		
CAD	Complete 12 credit hours of CAD courses numbered 120 or higher with the approval of the department chair of faculty advisor.....	12
Technical Electives	.....	8
	Complete 8 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: BCT, CAD, ENG, IDE, LTP, MAC, SLR, TEC or WLD.	
<b>Total credits as displayed.....</b>		<b>30</b>

## Integrated Circuit Layout Design – Certificate

Graduates of the Integrated Circuit Layout Design program are employed by firms who design and manufacture the subminiature electronic circuits that are at the nucleus of all electronic and computerized equipment. Integrated circuit designers use computer-aided-design systems to design the templates or masks that are used to manufacture microelectronic circuits. Graduates of this program may also be employed as electronic circuit board designers and layout specialists.

Learn basic drafting and design fundamentals using computer aided drafting (CAD) tools. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Work as an entry-level integrated circuit layout designer in manufacturing industries.

**Academic Options:** Continue your studies by completing Computer Aided Drafting AAS degree.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTICD.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead faculty: 206-7252

Program/Major Codes: **CRTICD/ICD**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CAD 104*	Integrated Circuit Layout Fundamentals (F-Sp).....	4
CAD 114	Electronic Manufacturing Processes (Sp).....	2
CAD 154*	Integrated Circuit Layout Design I (F-Sp).....	4
CAD 204*	Integrated Circuit Layout Design II (F-Sp).....	4
CAD 254*	Integrated Circuit Layout Design III (F-Sp).....	4
<b>Subtotal .....</b>		<b>18</b>
<b>Required Support Course</b>		
TEC 100	Introduction to Electronics Technology (F-Sp).....	3
<b>Subtotal .....</b>		<b>3</b>
<b>Total credits as displayed.....</b>		<b>21</b>

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

## Computer Aided Drafting — Associate of Applied Science Degree

Choose from three computer aided drafting concentrations. Complete the Construction concentration exclusively on weekdays or in a combination of weekdays and evenings. Complete the Mechanical/Electro-Mechanical and Integrated Circuit and Layout Design concentration by taking classes in a combination of weekdays and evenings.

### What can I do with this degree?

**Career Options:** Work as a drafter modeler and entry level designer in industries such as manufacturing, electronics, building construction and site development.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead faculty: 206-7252

Program/Major/Concentration Codes: **AASELECMECHN/CAD/\*\*\*\*** (see concentration codes below)

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

REA 081 or placement into REA 091 .....	0-4
Math assessment score at MAT 086 or higher or completion of MAT 082 with a grade of C or better .....	0-3
WRT 100 or placement into WRT 101 .....	0-3
<b>Subtotal</b> .....	<b>0-10</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	†
CAD 101 fulfills this requirement.	

Special Requirement

The C or G requirement should be fulfilled by completing an appropriate course in the above categories.

**Subtotal** ..... **18**¥

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

CAD 101	Computer Aided Drafting I (F-Sp-S).....	4
CAD 280*	Computer Aided Drafting and Design Portfolio (F-Sp).....	1
<b>Subtotal</b> .....		<b>5</b>

### Core Concentrations - A grade of C or better is required for graduation.

Complete one of the following concentrations: ..... 37

Department faculty approval is recommended when selecting concentration and technical elective courses.

#### Mechanical/Electro-Mechanical Concentration (Concentration Code: DFTA)

CAD 152*	Technical Drafting (F-Sp-S) .....	4
CAD 153*	Electro-Mechanical Drafting and Design (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
CAD 203*	Advanced Electro-Mechanical Drafting and Design (F-Sp).....	4
MAC 110*	Manual Machine Shop (Sp) .....	4

Parametric: Select 8 credits from the pairs listed below

CAD 142* and	Introduction to Parametric Modeling: SolidWorks (F-Sp).....	4
CAD 242*	Advanced Parametric Modeling: SolidWorks (F-Sp) .....	4
OR CAD 222* and	Introduction to Parametric Modeling: Inventor (F) .....	4
CAD 232*	Advanced Parametric Modeling: Inventor (Sp).....	4

OR CAD 252* and	Introduction to Parametric Modeling: Creo (F-Sp) .....	4
CAD 282*	Advanced Parametric Modeling: Creo (F-Sp) .....	4
Technical Electives	.....	10
	Complete 10 credit hours from the following list: CAD 142, 222, 232, 242, 252, 282, ENG, MAC, TEC 100, 101, WLD 110, or non-Business MAT 151 or higher	
<b>Subtotal</b>	.....	<b>37</b>

**Construction** (Concentration Code: DFTC)

CAD 151*	Computer Aided Drafting II (F-Sp-S) .....	4
CAD 155*	Residential Drafting and Design (F-Sp-S) .....	4
CAD 157*	Introduction to Site Development and Design (F-Sp-Su).....	4
	Complete 16 credit hours from the following courses: .....	16
CAD 127	Introduction to MicroStation (Sp).....	4
CAD 166	Introduction to Revit (F-Sp) .....	4
CAD 206*	Commercial Drafting and Design: Revit (F-Sp) .....	4
CAD 207*	Drafting and Design for Land Development: Civil 3D (F).....	4
CAD 247*	Transportation Design: MicroStation (n/o) .....	4
CAD 256*	Advanced Commercial Drafting and Design: Revit (F-Sp) .....	4
CAD 257*	Advanced Drafting and Design for Land Development: Civil 3D (Sp).....	4
CAD 265*	Design and Drafting for Sustainability (n/o) .....	4
CAD 266*	Mechanical, Electrical, Plumbing Drafting and Design: Revit MEP (n/o).....	4
	Complete 9 credit hours from the following courses: .....	9
BCT 101	Principles of Construction (F-Sp) .....	3
BCT 102	Building Materials (F-Sp) .....	3
BCT 204*	Construction Surveying (F-Sp).....	3
BCT 265	Sustainability for Building Trades (F-Sp).....	3
LTP 119	Plants for Landscape Design (n/o).....	3
LTP 129	Landscape Design (n/o) .....	3
LTP 140	Sustainability and Water Harvesting in Landscape (n/o) .....	3
<b>Subtotal</b>	.....	<b>37</b>

**Integrated Circuit Layout Design** (Concentration Code: DFTI)

CAD 104*	Integrated Circuit Layout Fundamentals (F-Sp).....	4
CAD 114	Electronic Manufacturing Processes (Sp).....	2
CAD 153*	Electro-Mechanical Drafting and Design (F-Sp) .....	4
CAD 154*	Integrated Circuit Layout Design I (F-Sp) .....	4
CAD 204*	Integrated Circuit Layout Design II (F-Sp) .....	4
CAD 254*	Integrated Circuit Layout Design III (n/o).....	4
TEC 100	Introduction and Overview of Electronics (F-Sp).....	3
TEC 101*	Physics for Technology (F-Sp).....	3
Technical Electives	.....	9
	Complete 9 credit hours from the following list with the approval of the department chair or faculty advisor: CAD 203 or other approved CAD courses; ENG; TEC 121, 122, 123.	
<b>Subtotal</b>	.....	<b>37</b>
<b>Total credits as displayed with program prerequisites</b>	.....	<b>60-70</b>

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

# 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 in a combination of weekdays, evenings and weekends.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCMPPRGSP.pdf>

**Locations:** East Campus, West Campus

**Department/Contact Information:**

Dean: 206-6996 (West Campus);  
 206-7694 (East Campus)

Program/Major/Concentration Codes: **CRTCMPPRGSP/CSG/\*** (see concentration codes below)

Course Number	Course Title	Credit Hours
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### Program Prerequisites and Required Core Courses - A grade of C or better is required for graduation.

Complete one of the following concentrations:

Department chair or faculty advisor approval is recommended in the selection of the program concentration. .... 19-32

#### Programming in C (Concentration Code: CSPC)

**Prerequisites for concentration:**

CIS 129*	Programming and Problem Solving I (F-Sp-Su).....	5
CIS 131*	Programming and Problem Solving II (F-Sp).....	4
CIS 250*	Introduction to Assembly Language (F-Sp).....	3
<b>Subtotal</b> .....		<b>12</b>

**Core Concentration:**

CIS 265*	The C Programming Language (F-Sp).....	4
CIS 269*	Data Structures (Sp).....	5
CIS 278*	C++ and Object-Oriented Programming (F-Sp).....	4
CIS 279*	Java Programming (F-Sp).....	5
<b>Subtotal</b> .....		<b>18</b>

**Total credits as displayed with program prerequisites** ..... **30**

#### Programming in Visual Basic (Concentration Code: CSPV)

**Prerequisites for concentration:**

CIS 129*	Programming and Problem Solving I (F-Sp-Su).....	5
Recommended:		
CSA 101*	Computer Fundamentals (F-Sp-Su).....	0-3
<b>Subtotal</b> .....		<b>5-8</b>

**Core Concentration:**

CIS 141*	Introduction to VB.NET (F-Sp-Su).....	4
CIS 162	Database Design and Development (F).....	3
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.

**Subtotal** ..... **14-16**



**Total credits as displayed with program prerequisites ..... 19-24**

**Programming for the Web** (Concentration Code: CSPW)

**Prerequisite for concentration:**

CIS 100	Introduction to Computers (F-Sp-Su).....	3
CIS 119*	Network Essentials (F-Sp-Su).....	3
<b>Subtotal</b>	<b>.....</b>	<b>6</b>

**Core Concentration:**

BUS 125	eCommerce (F-Sp-Su).....	3
CIS 121*	Web Publishing (F-Sp-Su).....	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 (Sp).....	4
CIS 279*	Java Programming (F-Sp).....	5
DAR 112	Graphic Design (F-Sp-Su).....	4
<b>Subtotal</b>	<b>.....</b>	<b>26</b>

**Total credits as displayed with program prerequisites ..... 32**

\* 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, or in a combination of evenings and weekdays and/or online.

### What can I do with this degree?

**Career Options:** Become a programmer or programmer/analyst.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Locations:** East Campus, West Campus

**Department/Contact Information:**

Dean: 206-7694 (East Campus);  
206-6996 (West Campus)

Program/Major Codes: **AASCMPPRGANL/CSP**

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirement.

CIS 129*	Programming and Problem Solving I (F-Sp-Su).....	5
<b>Subtotal</b>	<b>.....</b>	<b>5</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and WRT 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....	†
MAT 172 and a lab science course fulfill this requirement.	
Humanities and Social Science Requirement.....	3
ECN 201 fulfills 3 credits of the Social Science category. Complete a course from the Leadership/Ethics or Humanities/Fine Arts category that also meets the cultural diversity (C) or the global awareness (G) requirement.	
Computer and Information Literacy Requirement.....	†
Core courses fulfill this requirement.	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal</b> .....	<b>3‡</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CIS 131*	Programming and Problem Solving II (F-Sp) .....	5
CIS 141*	Introduction to VB.NET (F-Sp-Su).....	4
CIS 162	Database Design and Development (F) .....	3
CIS 182	Introduction to ANSISQL (F-Sp).....	3
CIS 250*	Introduction to Assembly Language (F-Sp).....	3
CIS 265*	The C Programming Language (F-Sp).....	4
CIS 269*	Data Structures (Sp).....	5
CIS 278*	C++ and Object Oriented Programming (F-Sp)	
or CIS 279*	Java Programming (F-Sp).....	4-5
CIS 280*	Systems Analysis and Design: Concepts and Tools (F-Sp) .....	4
CIS 281*	Systems Analysis and Design: Applications (F-sp).....	3
<b>Subtotal</b> .....		<b>38-39</b>
<b>Required Support Courses</b>		
ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201 .....	3
ECN 201*	Microeconomic Principles (F-Sp-Su) SUN# ECN 2202 .....	3
MAT 172*	Finite Mathematics (F-Sp-Su) .....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
Laboratory Science: Select one course from the following list:.....		4
AST 101/101LB/IN, 102/102LB		
BIO 100IN, 105IN, 181IN		
GEO 102		
GLG 101IN, GLG 102IN		
CIS Elective: Select a course below for 3 credit hours.....		3
CIS 199, 220, 221, 225, 241, 266, 299		
<b>Subtotal</b> .....		<b>22</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>68-69</b>

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

\* 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, in a combination of weekdays and evenings or in a combination of evenings and online. The CISCO Networking concentration is also available exclusively online.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTNETWRKADM.pdf>

**Locations:** East Campus, West Campus

**Department/Contact Information:**

Dean: 206-7694 (East Campus);  
 206-6996 (West Campus)

Program/Major/Concentration Codes: **CRTNETWRKADM/CSD/\*\*\*\*** (see concentration codes below)

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

Complete 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 (Concentration Code: CSNC)

CIS 170*	CISCO I: Networking Fundamentals (F-Sp-Su) .....	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
<b>Subtotal</b> .....		<b>20</b>

#### Systems Administration/Networking – Linux (Concentration Code: CSNX)

CIS 136	Microcomputer Components (F-Sp-Su)	
or TEC 130/130LB*	Computer Assembly and Testing (F-Sp) .....	3-4
CIS 119*	Network Essentials (F-Sp-Su)	
or CIS 170*	CISCO I: Networking Fundamentals (F-Sp-Su) .....	3-5
CIS 137*	Introduction to the UNIX Operating System (F-Sp-Su).....	3
CIS 225*	Linux (UNIX) System and Network Administration (F-Sp-Su).....	4
CIS 226*	Advanced Linux Networking (F-Sp).....	4
<b>Subtotal</b> .....		<b>17-20</b>

#### Systems Administration/Networking – Microsoft (Concentration Code: CSNM)

CIS 103	Microsoft Windows Operating System Professional Administration (F-Sp-Su).....	4
CIS 221*	Microsoft Windows Server (F-Sp).....	4
CIS 222*	Implementing Windows Network Infrastructure (Sp) .....	4
CIS 223*	Implementing Windows Directory Services (F) .....	4
CIS 224*	Designing Windows Network Security (Sp) .....	4
<b>Subtotal</b> .....		<b>20</b>

#### Systems Administration/Networking – Administrator (Concentration Code: CSNA)

CIS 103	Microsoft Windows Operating System Professional Administration (F-Sp-Su).....	4
CIS 119*	Network Essentials (F-Sp-Su).....	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-Su) .....	4
<b>Subtotal</b> .....		<b>19</b>
<b>Total credits as displayed</b> .....		<b>17-20</b>

\* 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 in a combination of evenings and online.

### What can I do with this degree?

**Career Options:** Administer microcomputer systems, administer CISCO, Microsoft or Novell systems.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Locations:** East Campus, West Campus

#### Department/Contact Information:

Dean: 206-7694 (East Campus),  
206-6996 (West Campus)

Program/Major/Concentration Codes: **AASCOMPYSAD/CSN/\*\*\*\*** (see concentration codes below)

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement.....	6
Computer and Information Literacy Requirement.....†	†
Core courses fulfill this requirement.	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>18‡</b>

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 Operating System Professional Administration (F-Sp-Su) .....	4
CIS 119*	Network Essentials (F-Sp-Su)	
or CIS 170*	CISCO I: Networking Fundamentals (F-Sp-Su) .....	3-5
CIS 133	Fundamentals of Personal Computer Security (F-Sp) .....	3
CIS 136	Microcomputer Components (F-Sp-Su)	
or TEC 130/ 130LB	Computer Assembly and Testing (F-Sp) .....	3-4
CIS 137*	Introduction to the UNIX Operating System (F-Sp-Su).....	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-Su).....	4
<b>Subtotal .....</b>	<b>28-31</b>	

Course Number	Course Title	Credit Hours
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**Core Concentrations - A grade of C or better is required for graduation.**

Complete one of the following concentrations: .....17-25  
 Department chair or faculty advisor approval is recommended in the selection of the program concentration.

**Cyber Security Concentration** (Concentration Code: CSNY)

CIS 132*	Introduction to Computer Forensics (F) .....	4
CIS 171*	CISCO II Networking Router Technologies (F-Sp).....	5
CIS 223* and CIS 224* or CIS 235*	Implementing Windows Directory Services (F) .....	4-8
	Designing Windows Network Security (Sp)	
	Advanced Topics in Linux/Unix Security (F)	
CIS 228*	Fundamentals of Network Security (Su).....	4
CIS 229*	Protecting Your PC and Network: Countermeasures to Network Intrusion (n/o) .....	4
<b>Subtotal .....</b>	<b>20-25</b>	

**Administrator** (Concentration Code: CSNA)

Choose any five courses.

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 (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
CIS 228*	Fundamentals of Network Security (Su).....	4
CIS 235*	Advanced Topics in Linux/Unix Security (F).....	4
<b>Subtotal .....</b>	<b>20-23</b>	
<b>Total credits as displayed .....</b>	<b>63-74</b>	

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

‡ General Education requires 18 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

# Computer Software Applications

## Computer Software Applications Assistant — Certificate for Direct Employment

Learn software programs in the Windows operating environment. Complete this program by taking classes exclusively on weekdays, exclusively evenings, or in a combination of weekdays and evenings/weekends.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCOMPAPPAD.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7174 Lab

Program/Major Codes: **CRTCOMPAPPAD/CST**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
OAP 111A	Computer Keyboarding and Document Production: Keyboard (F-Sp) .....	1
CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
CSA 110*	Spreadsheets: Microsoft Excel (F-Sp-Su) .....	3
CSA 120*	Word Processing: Word (F-Sp-Su) .....	3
CSA 130*	PowerPoint (F-Sp) .....	3
CSA 152*	Internet Browser: Microsoft Explorer (n/o) .....	2
CSA 170*	Database: Access (F-Sp) .....	3
CSA 182A*	Microsoft Windows: Current Version Module A (n/o) .....	1
CSA 182B*	Microsoft Windows: Current Version Module B (n/o) .....	1
<b>Total credits as displayed .....</b>		<b>20</b>

\* 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 by taking classes exclusively on weekdays, exclusively evenings, or in a combination of weekdays and evenings/weekends.

**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.

**Location:** Desert Vista Campus

**Department/Contact Information:**

Dean: 206-5105

Lead Faculty: 206-5164

Program/Major Codes: **CRTCULNRYART/RCC**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - 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 (F-Sp).....	2
CUL 115	Food Service Sanitation and Safety (F-Sp).....	3
CUL 130	Hot Foods I (F-Sp) .....	3
CUL 140	Culinary Principles (F-Sp).....	3
CUL 150	Garde Manger (F-Sp) .....	3
CUL 160	Bakery and Pastry Production I (F-Sp).....	3
CUL 230	Hot Foods II (n/o) .....	3
CUL 251	International Cuisine: World of Flavor (F-Sp) .....	3
CUL 260*	Bakery and Pastry Production II (F-Sp).....	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 this program by taking classes exclusively in the evenings, or in a combination of weekdays and evenings/weekends.

**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 program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Desert Vista Campus

**Department/Contact Information:**

Dean: 206-5105

Lead Faculty: 206-5164

Program/Major Codes: **AASCULNRYART/RCF**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement.....	6
Computer and Information Literacy Requirement.....	1-3
<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.

CUL 101	Principles of Restaurant Operations (F-Sp).....	3
CUL 110	Food Service Nutrition (F-Sp).....	2
CUL 115	Food Service Sanitation and Safety (F-Sp).....	3
CUL 130	Hot Foods I (F-Sp).....	3
CUL 140	Culinary Principles (F-Sp).....	3
CUL 150	Garde Manger (F-Sp).....	3
CUL 160	Bakery and Pastry Production I (F-Sp).....	3
CUL 180	Food in History (F).....	3
CUL 185	Catering Operations (F-Sp).....	2
CUL 230	Hot Foods II (n/o).....	3
CUL 251	International Cuisine: World of Flavor (F-Sp).....	3
CUL 260*	Bakery and Pastry Production II (F-Sp).....	3
<b>Subtotal .....</b>	<b>34</b>	

### Required Support Courses

Complete nine credits from the following:

ACC 100	Practical Accounting Procedures (F-Sp-Su).....	3
CUL 161	Cake Decorating and Candy Making (F-Sp).....	3
CUL 162	Art of Chocolate (n/o).....	1
CUL 163	Sauces (n/o).....	3
CUL 199WK	Co-op Work: Culinary Arts (n/o).....	1-3
CUL 261*	Advanced Cake Decorating (Sp).....	3
<b>Subtotal .....</b>	<b>9</b>	
<b>Total credits as displayed .....</b>	<b>62-64</b>	

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

## 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 Assisting Education
- Dental Hygiene
- 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 by taking classes exclusively on weekdays.

**Before enrolling in this program**, you must meet certain requirements:

This degree requires a special program application. Students may request a program application available at: [www.pima.edu/programs-courses/credit-programs-degrees/health-professions/dental/dental-hygiene/index.html](http://www.pima.edu/programs-courses/credit-programs-degrees/health-professions/dental/dental-hygiene/index.html) when all prerequisites are complete.

**Because of the clinical component of this program, students must:**

- Be able to perform a number of physical activities in the clinical portion of the program. At a minimum, students will need to stand for several hours at a time and perform bending activities. The clinical 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 submitting an application.
- Present proof of immunization and/or immunity for MMR/Varicella/Hepatitis-B/TDaP.
- Show proof of negative TB skin test or negative chest x-ray for TaB.
- Maintain health insurance and a current CPR card at the Health Care Provider Level throughout the program.

### What can I do with this certificate?

**Career Options:** Take the exams to gain National Dental Assisting Certification, Arizona Oral Radiology Certification and Coronal Polishing Certification. 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6661

Lead Faculty: 206-6916

### Program Prerequisites

Students must have completed the following requirements before they begin the application process:

Compass reading assessment score of 95 or completion of REA 112 ..... 0-4

High school or college biology course ..... 0-4

High school diploma or G.E.D. ....

**Subtotal** ..... **0-8**

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

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 165/165LC*	Dental Assisting Procedures I/ Dental Assisting Procedures Clinical I(F).....	2
DAE 166*	Dental Assisting II (Sp).....	3
DAE 167*	Dental Assisting III (Sp).....	3
DAE 169/169LC*	Dental Assisting Procedures II/ Dental Assisting Procedures Clinical II (Sp).....	6.5
<b>Total credits as displayed with program prerequisites .....</b>		<b>29.5-37.5</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 by taking classes in a combination of weekdays and evenings.

**Before enrolling in this program,** you must meet certain requirements:

This degree requires a special program application. Once all prerequisites are complete students can access the program application on the MyPima Academics tab in the Degrees and Programs section. Additional application information is available at <http://www.pima.edu/programs-courses/credit-programs-degrees/health-professions/dental/dental-hygiene/index.html>.

**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.
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 dental 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 submitting an application and be advised that they may be exposed to blood borne pathogens and infectious diseases during delivery of care.
4. Present proof of immunization or immunity for MMR/Varicella/Hep-B, Hep-A, TB and TDap.
5. Show proof of negative TB skin test or negative chest x-ray for TB.
6. Maintain health insurance.

Health related professions students are advised that state/national license exams or certification applications may include a personal history section in which prospective applicants must report and may have to provide a detailed explanation of legal situations. Examples of situations which may prohibit licensure or certification include, but are not limited to: felony or misdemeanor convictions, substance abuse, conviction of an offense involving immoral behavior, or being guilty of acts which deceive, defraud or cause harm to the public in any way.

Fingerprinting may be part of many state and federal licensing and certification processes. If there is any question about eligibility for licensure or certification, it is the responsibility of the applicant to contact the state and/or federal agency responsible for licensure or certification.

Students who opt to leave the dental hygiene program may re-enter one time without need to repeat mandatory course work, if they re-enter within one (1) year based on space availability.

### 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, public health and government agencies.

**Academic Options:** Continue your studies at Northern Arizona University for a Bachelor of Science in Dental Hygiene or other online baccalaureate opportunities.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6661

Lead Faculty: 206-6916

#### Program Prerequisites

Student must have completed the following basic requirements before they may begin the application process.

REA 112* or Compass reading assessment score of 95 or higher.....	0-4
MAT 122* or Math assessment score at MAT 151 or higher.....	0-3
CHM 140/140LB or 140IN*, BIO 201IN*, BIO 202IN*, and BIO 205IN* with a combined average grade of B or better within the last six years. Complete the CHM 130/130LB or 130IN* prerequisite and the BIO 156IN prerequisite as needed .....	22-26
CSA 100, 101, or CIS 100 .....	1-3
<b>Subtotal .....</b>	<b>23-36</b>

#### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and 102 fulfill this requirement	
Analysis and Critical Thinking Requirement.....	†
Math and Science program prerequisites fulfill this requirement	
Humanities and Social Science Requirement .....	3
SOC 101 fulfills 3 credits in the Social Science category. Complete a course from the Humanities/Fine Arts or Leadership/Ethics category.	
Computer and Information Literacy Requirement .....	†
Core courses fulfill this requirement	
Special Requirement	
SOC 101 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.

DHE 101/101LC*	Dental Hygiene I/Dental Hygiene I Clinical (F).....	5
DHE 104/104LB*	Dental and Oral Morphology/Dental and Oral Morphology Lab (F).....	2
DHE 107*	Oral Embryology and Histology (F).....	2
DHE 112*	Preventive Dentistry (F).....	3
DHE 116/116LC*	Oral Radiography/Oral Radiography Clinic (F).....	3
DHE 119*	Periodontology (Sp).....	2
DHE 120*	Oral Pathology (Sp).....	2
DHE 122*	Pharmacology (Sp).....	2
DHE 132/132LB*	Dental Materials/Dental Materials Lab (Sp) .....	3
DHE 150/150LB/ 150LC*	Dental Hygiene II/Dental Hygiene II Lab/Dental Hygiene II Clinical (Sp) .....	5.5
DHE 208/208LC*	Pain and Anxiety Control for Dental Hygiene/Pain and Anxiety Control for Dental Hygiene Clinical (F).....	2
DHE 209	Ethics and Practice Management (F).....	1
DHE 212	Nutrition and Oral Health .....	1
DHE 213//213CA/ 213CB*	Advanced Periodontal Services/Advanced Periodontal Services Clinical-A/ Advanced Periodontal Services Clinical-B (Sp) .....	4
DHE 216*	Community and Dental Health Education (Sp) .....	3
DHE 250/250LC*	Dental Hygiene III/Dental Hygiene III Clinical (F) .....	7
DHE 255/255LC*	Dental Hygiene IV/Dental Hygiene IV Clinical (F) .....	5
<b>Subtotal .....</b>		<b>51.5</b>

**Required Support Courses**

PSY 101	Introduction to Psychology (F-Sp-Su) SUN# PSY 1101 .....	4
SOC 101	Introduction to Sociology (F-Sp-Su) SUN# SOC 1101 .....	3
SPE 102	Introduction to Speech Communication (F-Sp-Su) SUN# COM 1100.....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
<b>Subtotal</b> .....		<b>16</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>93.5-106.5</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Dental Laboratory Technologies

### Dental Laboratory Technology — Associate of Applied Science Degree for Direct Employment

Learn the skills to construct and repair dentures, partial dentures, crowns, bridges and other dental appliances. Get 1,492 clock hours of laboratory practice. This program is accredited by the American Dental Association Commission on Dental Accreditation. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

**Before enrolling in this program**, please complete a program application (available at: [www.pima.edu/programs-courses/credit-programs-degrees/health-professions/dental/dental-laboratory-admission.html](http://www.pima.edu/programs-courses/credit-programs-degrees/health-professions/dental/dental-laboratory-admission.html))

#### 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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6661

Lead Faculty: 206-3100

#### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	†
CHM 130/130LB or 130IN and the MAT support course fulfill this requirement.	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	1-3
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal</b> .....	<b>13-15‡</b>

Course Number	Course Title	Credit Hours
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#### Required Core Courses - A grade of C or better is required for graduation.

DLT 101/101LB*	Dental Morphology (F) .....	3
DLT 102*	Non-Metallic Dental Materials (F) .....	3
DLT 103/103LB*	Complete Dentures (F) .....	4
DLT 104/104LB*	Dental Occlusion** (Sp).....	4
DLT 105/105LB*	Partial Denture Construction (Sp).....	4
DLT 106/106LB*	Orthodontic Appliances (Sp) .....	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) .....	5
<b>Subtotal .....</b>			<b>46</b>

### Required Support Courses

CHM	130*/130LB* or CHM 130IN*	Fundamental Chemistry (F-Sp-Su) SUN# CHM 1130 .....	5
MAT*		Any course at the 100 or higher level .....	1-4
MGT	124	Small Business Management (F-Sp-Su) .....	3
<b>Subtotal .....</b>			<b>9-12</b>
<b>Total credits as displayed .....</b>			<b>68-73</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Complete Dentures Technologist — Certificate 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 by taking classes exclusively in the evenings.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6661

Lead Faculty: 206-3100

Course Number	Course Title	Credit Hours	
<b>Required Core Courses - A grade of C or better is required for graduation.</b>			
DLT	101/101LB*	Dental Morphology** (F) .....	3
DLT	102*	Non-Metallic Dental Materials (F) .....	3
DLT	103/103LB*	Complete Dentures (F) .....	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 in the evenings.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6661

Lead Faculty: 206-3100

Course Number	Course Title	Credit Hours
<b>Required Core Courses - 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 (n/o) .....	3
DLT 206/206LB*	Dental Ceramics (n/o) .....	4
DLT 207/207LB*	Advanced Dental Laboratory Technology (n/o) .....	5
<b>Total credits as displayed.....</b>		<b>18</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 by taking classes exclusively in the evenings.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6661

Lead Faculty: 206-3100

Course Number	Course Title	Credit Hours
<b>Required Core Courses - 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 (n/o) .....	3
DLT 202*	Dental Metallurgy (n/o) .....	3
DLT 203/203LB*	Fixed Bridgework (n/o) .....	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 101/101 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 in the evenings.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6661

Lead Faculty: 206-3100

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
DLT 101/101LB*	Dental Morphology** (F) .....	3
DLT 104/104LB*	Dental Occlusion ** (Sp).....	4
DLT 105/105LB*	Partial Denture Construction (Sp).....	4
DLT 106/106LB*	Orthodontic Appliances (Sp).....	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 101/101LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

# Digital Arts Studies

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

### 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 weekdays and evenings and/or online.

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

**Career Options:** Become a graphic designer, desktop publisher or web designer.

**Academic options:** Pursue an associates degree in Digital Arts

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTCOMMGRAPH.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6840

Program/Major Codes: **CRTCOMMGRAPH/DAC**

Course Number	Course Title	Credit Hours
<b>Program Prerequisites</b>		
Before enrolling in this program, you must fulfill the following requirements.		
DAR 100	Fundamentals of Rendering (F-Sp) .....	4
DAR 103	Introduction to Digital Arts (F-Sp-Su) .....	3
DAR 051 or DAR 120	Basic Macintosh for Computer Graphics (F-Sp) .....	1-4
	Applied Computer Graphics (F-Sp-Su) .....	
<b>Subtotal</b> .....		<b>8-11</b>

#### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	3
Analysis and Critical Thinking Requirement.....	3
<b>Subtotal</b> .....	<b>6</b>

#### Required Core Courses - A grade of C or better is required for graduation.

DAR 101*	Color Rendering and Theory (F-Sp).....	4
DAR 111*	Typography (F-Sp-Su) .....	4
DAR 112	Graphic Design (F-Sp-Su).....	4
DAR 220* or DAR 226*	DeskTop Publishing for Digital Arts: QuarkXpress (n/o) DeskTop Publishing for Digital Arts: Adobe InDesign (F-Sp) .....	4
<b>Subtotal</b> .....		<b>16</b>

#### Required Support Courses

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 with program prerequisites</b> .....	<b>42-45</b>

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

## 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 by taking classes exclusively on weekdays, or in a combination of weekdays and evenings and/or online.

### What can I do with this degree?

**Career Options:** Become a print designer, web designer, illustrator, multimedia artist, or press operator.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6840

Program/Major/Concentration Codes: **AASCOMMGRAPH/DAR/\*\*\*\*** (see concentration codes below)

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

DAR 100	Fundamentals of Rendering (F-Sp) .....	4
DAR 103	Introduction to Digital Arts (F-Sp-Su) .....	3
DAR 051 or DAR 120	Basic Macintosh for Computer Graphics (F-Sp) .....	1-4
	Applied Computer Graphics (F-Sp-Su) .....	
<b>Subtotal</b> .....		<b>8-11</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement .....	6
Analysis and Critical Thinking Requirement .....	6
Humanities and Social Science Requirement .....	3
ART 105, 130, or 131 fulfills 3 credits of this requirement. Complete a course from the Social Science or Leadership & Ethics category.	
Computer and Information Literacy Requirement .....	†
Core courses fulfill this requirement	
Special Requirement	
ART 105, 130 or 131 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) .....	4
DAR 111*	Typography (F-Sp-Su) .....	4
DAR 112	Graphic Design (F-Sp-Su) .....	4
DAR 122*	DeskTop Graphics: Adobe Illustrator (F-Sp-Su) .....	4
DAR 221*	Photo Image Editing: Adobe PhotoShop (F-Sp-Su) .....	4
DAR 226*	DeskTop Publishing for Digital Arts: Adobe InDesign (F-Sp) .....	4
DAR 256*	Web Design: Dreamweaver (F-Sp) .....	4
DAR 288*	Digital Arts Business and Portfolio Capstone (F-Sp) .....	2
<b>Subtotal</b> .....		<b>30</b>

### Required Support Course

ART 105	Exploring Art and Visual Studies (F-Sp-Su)	
or ART 130	Art and Culture: Prehistoric Through Gothic (F-Sp-Su) SUN# ART 1101	
or ART 131	Art and Culture: Late Gothic Through Modern Periods (F-Sp-Su) SUN# ART 1102 .....	3
<b>Subtotal</b> .....		<b>3</b>



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

Complete one of the following concentrations: ..... 20  
 Department faculty advisor or counselor approval is recommended in the selection of the program concentration.

**Design** (Concentration Code: DARD)

DAR 128	Digital Photography I (F-Sp-Su).....	4
DAR 210*	Digital Arts Design Studio: Advertising Design (F-Sp-Su).....	4
DAR 211*	Digital Arts Design Studio: Product Design (F-Sp-Su).....	4
DAR 212	Digital Arts Design Studio: Package Design (F-Sp-Su).....	4
DAR 230*	Production Techniques for Print (F).....	4
<b>Subtotal</b>	<b>.....</b>	<b>20</b>

**Illustration** (Concentration Code: DARI)

DAR 140*	Digital Arts Illustration Studio: Illustration Technique and Media (F-Sp).....	4
DAR 145*	Digital Arts Illustration Studio: Character Development for Animation & Print (F-Sp).....	4
DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop (F-Sp)	
or DAR 223*	Digital Drawing and Painting (Sp).....	4
DAR 230*	Production Techniques for Print (F).....	4
DAR 240*	Digital Arts Illustration Studio: Book Illustration (F-Sp).....	4
<b>Subtotal</b>	<b>.....</b>	<b>20</b>

**Multimedia** (Concentration Code: DARM)

DAR 115	Digital Video Editing (F-Sp).....	4
DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop (F-Sp)	
or DAR 223*	Digital Drawing and Painting (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: Flash (F-Sp).....	4
<b>Subtotal</b>	<b>.....</b>	<b>20</b>

**Web Design** (Concentration Code: DARW)

Complete 8 credit hours from the following list:

DAR 115	Digital Video Editing (F-Sp).....	4
DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop (F-Sp).....	4
DAR 228*	Advanced Desktop Graphics: Adobe Illustrator (F).....	4
and complete all of the following courses:		
DAR 252*	Digital Multimedia Design I: Flash (F-Sp).....	4
DAR 254*	Digital Multimedia Design II: Advanced Flash (F).....	4
DAR 257*	Advanced Web Design (Sp).....	4
<b>Subtotal</b>	<b>.....</b>	<b>20</b>
<b>Total credits as displayed with program prerequisites</b>	<b>.....</b>	<b>76-79</b>

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## 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 weekdays and evenings.

**Before enrolling in this program**, 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRDDAR.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6840

Program/Major Codes: **CRDDAR/DAP**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
DAR 212*	Digital Arts Design Studio: Package Design (F-Sp-Su) .....	4
DAR 222*	Advanced Photo Image Editing: Adobe Photoshop (F-Sp) .....	4
DAR 228*	Advanced Desktop Graphics: Adobe Illustrator (F) .....	4
DAR 235*	Advanced Design and Production Applications (F) .....	4
DAR 254*	Digital Multimedia Design II: Advanced Flash (F) .....	4
DAR 288*	Digital Arts Business and Portfolio Capstone (F-Sp) .....	2
<b>Subtotal</b> .....		<b>22</b>

Choose eight (8) credits from the following list (or other related courses with the approval of the department chair or faculty advisor) which were not used in an associate or bachelor's degree.

DAR 211*	Digital Arts Design Studio: Product Design (F-Sp-Su) .....	4
DAR 223*	Digital Drawing and Painting (Sp) .....	4
DAR 236*	Advanced Desktop Publishing (n/o) .....	4
DAR 250*	Computer 2D Animation: Adobe After Effects (F-Sp) .....	4
DAR 251*	Computer 3D Animation: Maya (Sp) .....	4
DAR 252*	Digital Multimedia Design I: Flash (F-Sp) .....	4
DAR 256*	Web Design: Dreamweaver (F-Sp) .....	4
DAR 257*	Advanced Web Design (Sp) .....	4
<b>Subtotal</b> .....		<b>8</b>
<b>Total credits as displayed</b> .....		<b>30</b>

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

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

# Digital and Film Arts

## 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 in a combination of online and weekdays and/or evenings.

### What can I do with this certificate?

**Career Options:** Become a media center manager; television/film camera operator, digital video editor or commercial producer; script writer or audio technician.

**Academic Options:** Students planning to transfer to a four-year Digital Video and Film Arts degree program should pursue a Digital Arts Associate degree simultaneously with this certificate.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTDIGIFILM.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6976

Program/Major Codes: **CRTDIGIFILM/MDF/\*\*\*\*** (see concentration codes below)

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
DAR 103	Introduction to Digital Arts (F-Sp-Su) .....	3
DAR 115	Digital Video Editing (F-Sp) .....	4
DAR 124*	Writing for Film and Television (F-Sp).....	3
DAR 173	History of American Cinema (F-Sp-Su) .....	3
<b>Subtotal</b> .....		<b>13</b>

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

Complete courses from one of the following concentrations: ..... 14-15  
 Department faculty advisor or counselor approval is recommended in the selection of the program concentration, and required for selection of electives.

**Cinematography** (Concentration Code: MDFC)

DAR 175*	Cinematography (F-Sp) .....	3
DAR 205*	Lighting for Film and Video (Sp).....	4
DAR 215*	Advanced Cinematography (F).....	4
DAR 217*	Post Production for Film (Sp).....	4
<b>Subtotal</b> .....		<b>15</b>

**Digital Video Production** (Concentration Code: MDFD)

DAR 125*	Digital Video Production I (F-Sp).....	3
DAR 205*	Lighting for Film and Video (Sp).....	4
DAR 225*	Digital Video Production II (Sp).....	4
DAR 277*	Film/Video Production Financing (Sp) .....	3
<b>Subtotal</b> .....		<b>14</b>

**Sound Design** (Concentration Code: MDFS)

DAR 177*	Location Sound for Film/Video (F).....	4
DAR 218*	Introduction to Film Music (F-Sp) .....	3
DAR 275*	Basic Audio Production (F-Sp) .....	4
DAR 276*	Advanced Audio Production (Sp) .....	4
<b>Subtotal</b> .....		<b>15</b>

**Animation** (Concentration Code: MDFA)

DAR 176	Film Animation (F)	3
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: Flash (F-Sp)	4
<b>Subtotal</b>		<b>15</b>
<b>Total credits as displayed</b>		<b>27-28</b>

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

## 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 in a combination of online and weekdays, and/or evenings and online.

### 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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6976

Program/Major Codes: **AASDIGIFILM/MEF**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement	†
WRT 101 and 102 fulfill this requirement	
Analysis and Critical Thinking Requirement	6
Humanities and Social Science Requirement	6
Computer and Information Literacy Requirement	†
CSA 100 fulfills this requirement	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal</b>	<b>12†</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 103	Introduction to Digital Arts (F-Sp-Su)	3
DAR 115	Digital Video Editing (F-Sp)	4
DAR 124*	Writing for Film and Television (F-Sp)	3
DAR 125*	Digital Video Production I (F-Sp)	3
DAR 173	History of American Cinema (F-Sp-Su)	3
DAR 175*	Cinematography (F-Sp)	3
DAR 205*	Lighting for Film and Video (Sp)	4
DAR 215*	Advanced Cinematography (F)	4
DAR 217*	Post Production for Film (Sp)	4
DAR 225*	Digital Video Production II (Sp)	4
DAR 275*	Basic Audio Production (F-Sp)	4
DAR 285*	Documentary Television and Film Production (Sp)	4
<b>Subtotal</b>		<b>43</b>

**Required Support Courses**

CSA 100*	Computer Fundamentals (F-Sp-Su) .....	1
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
Electives	.....	3-4
Select 3-4 credits from the following list: DAR 127, 174, 176, 177, 224, 276, 277, 290E2, 296		
<b>Subtotal</b> .....		<b>10-11</b>
<b>Total credits as displayed</b> .....		<b>65-66</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## 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 in a combination of online and weekdays and/or evenings.

### 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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6976

Program/Major Codes: **AASANIMATION/ANM**

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

DAR 100	Fundamentals of Rendering (F-Sp) .....	4
DAR 103	Introduction to Digital Arts (F-Sp-Su) .....	3
DAR 051 or DAR 120	Basic Macintosh for Computer Graphics (F-Sp) .....	1-4
	Applied Computer Graphics (F-Sp-Su) .....	
<b>Subtotal</b> .....		<b>8-11</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and 102 fulfill this requirement	
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	3
DAR 250 fulfills 3 credits of this requirement. Complete a course from the Social Science, or Leadership & Ethics category which meets the Cultural Diversity (C) or Global Awareness (G) requirement.	
Computer and Information Literacy Requirement .....	†
CSA 100 fulfills this requirement.	
<b>Subtotal</b> .....	<b>9‡</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).....	4
DAR 115	Digital Video Editing (F-Sp) .....	4
DAR 122*	DeskTop Graphics: Adobe Illustrator (F-Sp-Su).....	4
DAR 124*	Writing for Film and Television (F-Sp).....	3
DAR 125*	Digital Video Production I (F-Sp).....	3

DAR 140*	Digital Arts Illustration Studio: Illustration Technique and Media (F-Sp) .....	4
DAR 173	History of American Cinema (F-Sp-Su) .....	3
DAR 175*	Cinematography (F-Sp) .....	3
DAR 176	Film Animation (F) .....	3
DAR 221*	Photo Image Editing: Adobe PhotoShop (F-Sp-Su) .....	4
DAR 223*	Digital Drawing and Painting (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

CSA 100*	Computer Literacy (F-Sp-Su) .....	1
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
<b>Subtotal</b> .....		<b>7</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>71-74</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Digital and Film Arts — Associate of Arts Degree for Transfer

A student planning to obtain a Digital and Film Arts degree should follow the Associate of Arts Degree for Transfer in Liberal Arts.

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/Major Codes: **AOALIBRALART/ALA**

## Digital Game and Simulation

### Digital Game and Simulation — Associate of Applied Science Degree for Direct Employment

Prepare for a career in digital games and simulations. Complete this program by taking classes in a combination of weekdays and evenings and/or online.

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

**Career Options:** Become a game play tester; game designer or programmer; or an artist, character builder, or modeler working with digital games and simulations.

**Academic Options:** While intended to prepare students for direct employment in the digital game/simulation industry, some courses will transfer to a 4-year university.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-6908

Program/Major/Concentration Codes: **AASDAG/DAG/\*\*\*\*** (see concentration codes below)

**General Education Courses - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement*.....	3
MAT 145 or 187 fulfills 3 credits of this requirement. Complete a course from the Science or Critical Thinking category.	
Humanities and Social Science Requirement**.....	6
Computer and Information Literacy Requirement.....	†
Core courses fulfill this requirement	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>15¥</b>

\* Physics is recommended.  
 \*\* ART 100 or 110 is recommended.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
GAM 101	Game Design I (F-Sp-Su) .....	4
GAM 102*	Game Design II (F-Sp).....	4
GAM 120*	Introduction to Game Programming (Sp).....	4
GAM 201*	Game Design III (Sp) .....	4
GAM/DAR 218*	Game Design Portfolio Capstone (F) .....	4
<b>Subtotal .....</b>		<b>20</b>

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

Complete courses from one of the following concentrations: .....30-31  
 Department faculty or advisor approval is recommended.

**Digital Programming** (Concentration Code: DAGP)

CIS 129*	Programming and Problem Solving I (F-Sp-Su).....	5
CIS 142*	Introduction to C# (F-Sp) .....	4
CIS 278*	C++ and Object-Oriented Programming (F-Sp) .....	4
CIS 279*	Java Programming (F-Sp).....	5
GAM 150*	Game Programming I (F).....	4
GAM 151*	Game Programming II (Sp).....	3
MAT 187*	Precalculus (F-Sp-Su).....	5
<b>Subtotal .....</b>		<b>30</b>

**Digital Animation and Production** (Concentration Code: DAGA)

ART 213*	Life Drawing (F-Sp).....	3
DAR 122*	Desktop Graphics: Adobe Illustrator (F-Sp-Su) .....	4
DAR 221*	Photo Image Editing: Adobe Photoshop (F-Sp-Su).....	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: Flash (F-Sp) .....	4
DAR 258*	Advanced Computer 3D Animation: Maya (Sp).....	4
MAT 145*	Mathematics for Game Design (n/o) .....	4
<b>Subtotal .....</b>		<b>31</b>
<b>Total credits as displayed.....</b>		<b>65-66</b>

† Core or support course(s) fulfill this requirement.  
 ¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.

# Direct Care Professional

## Basic Direct Care Professional – Certificate for Direct Employment

Gain the basic knowledge and skills needed to provide direct care for the aged or for individuals with physical, mental or developmental disabilities. Complete this program by taking classes exclusively on evenings.

### What can I do with this certificate?

**Career Options:** Work for a health care agency providing care to individuals in a home setting who need assistance due to aging and physical disabilities, Alzheimer's and other forms of dementia, and developmental disabilities.

**Academic Options:** Pursue a Certified Nursing Assistant (CNA) certificate, Licensed Practical Nurse (LPN) or Registered Nurse (RN) program, or a Special Education Teaching certificate.

**Location:** Northwest Campus

**Department/Contact Information:**

Dean: 206-2216

Lead Faculty: 206-2241

Program/Major Codes: **CRTDCP/DCP**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
DCP 101	Direct Support Professional: Principles of Care Giving (Sp) .....	2.25
DCP 102*	Direct Support Professional: Aging and Physical Disabilities (Sp) .....	2
DCP 103*	Direct Support Professional: Alzheimer's and Other Forms of Dementia (Sp) .....	2
DCP 104*	Direct Support Professional: Developmental Disabilities (Sp) .....	2
<b>Total</b> .....		<b>8.25</b>

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



# Education

From infancy through high school, from classroom basics to advanced certification, gain the skills to educate tomorrow’s leaders.

- Early Childhood Education
- Teacher Education
- Educational Technology

## Early Childhood Education and Child Development Associate

Prepare to care for children birth through age eight by learning theories and skills to best support young children’s growth and development.

### Basic Early Childhood Studies — Certificate for Direct Employment

Learn fundamental concepts in Early Care and Education. Courses focus on child development, learning and culture as well as teaching techniques, observation, and curriculum. Complete this program by taking classes in a combination of weekdays and online.

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

**Career Options:** Apply for the national Child Development Associate credential; or meet the CDA equivalency as defined by the National Association for the Education of Young Children (NAEYC), or use the coursework to meet the state Department of Health Service professional development requirements.

**Academic Options:** Continue your studies by applying your coursework towards the Advanced Early Childhood Studies Certificate and/or the Early Childhood Studies AAS.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTECB.pdf>

**Location:** Desert Vista Campus

**Department/Contact Information:**

Center for Early Childhood Studies: 206-5245  
 Dean: 206-5098  
 Lead Faculty: 206-5107

Program/Major/Concentration Codes: **CRTECB/ECB/\*\*\*\*** (see concentration codes below)

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CDA 102	The Child’s Total Learning Environment (F-Sp-Su) .....	1
CDA 103	Curriculum Planning and Schedule Development (F-Sp-Su) .....	1
ECE 115*	Supervision and Administration of Early Childhood Programs (F-Sp-Su).....	3
CDA 121	Techniques for Observing Children (F-Sp-Su).....	1
CDA 155	Understanding How Children Learn and Develop (F-Sp-Su).....	1
CDA 161	Principles of Social Competence (F-Sp-Su) .....	1
CDA 222	Elements of Children’s Culture (F-Sp-Su).....	1
<b>Subtotal</b> .....		<b>9</b>

#### Core Concentrations - A grade of C or better is required for graduation.

Complete one of the following Concentrations: ..... 7

#### Child Development Associate Credential (CDA) Preparation (Concentration Code: ECBC)

CDA 229	Child Development Associate Assessment Preparation (F-Sp-Su) .....	3
Electives:	Complete 4 credits from ECE and/or CDA courses.....	4
<b>Subtotal</b> .....		<b>7</b>

**Early Childhood Foundations Concentration** (Concentration Code: ECBF)

ECE 117	Child Growth and Development (F-Sp-Su) .....	3
Electives:	Complete 4 credits from ECE and/or CDA courses .....	4
<b>Subtotal</b>	.....	<b>7</b>
<b>Total credits as displayed</b>	.....	<b>16</b>

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

## Advanced Early Childhood Studies — Certificate for Direct Employment

Acquire theoretical knowledge and develop the competencies needed to enter a career and to continue professional growth in the care and education of children birth through age eight in various settings. Complete this program by taking classes exclusively online, in a combination of evenings and online, or a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Apply for the national Child Development Associate credential; or meet the CDA equivalency as defined by the National Association for the Education of Young Children (NAEYC), or use the coursework to meet state Department of Health Service professional development requirements.

**Academic Options:** Continue your studies by applying your coursework toward the Early Childhood Studies AAS.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTECA.pdf>

**Location:** Desert Vista Campus

**Department/Contact Information:**

Center for Early Childhood Studies: 206-5245

Dean: 206-5098

Lead Faculty: 206-5107

Program/Major Codes: **CRTECA/ECA**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ECE 112	Music and Art for Children (F-Sp).....	3
ECE 117*	Child Growth and Development (F-Sp-Su) .....	3
ECE 190*	Early Childhood Education: Theory to Practice (F-Sp).....	4
ECE 200*	Foundations of Early Childhood Education (F-Sp).....	3
or CDA 102	The Child's Total Learning Environment (F-Sp-Su) .....	1
and CDA 121	Techniques for Observing Children (F-Sp-Su) .....	1
and CDA 271	Professionalism in Childcare(F-Sp-Su) .....	1
ECE 226	Teaching Techniques and Behavior Management (F-Sp-Su) .....	3
ECE 228*	The Young Child: Family, Culture, and Community (F-Sp-Su).....	3
ECE 240	Assessment of Young Children (F-Sp-Su).....	3
<b>Total credits as displayed</b>	.....	<b>22</b>

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

## Early Childhood Studies — Associate of Applied Science Degree for Direct Employment

Learn to excel at caring for and educating young children through this flexible, high-quality program. Students planning to transfer to a four-year university should pursue the Early Childhood Education or Elementary Education AA degree. Complete this program by taking classes exclusively online, or in a combination of evenings and online, or a combination of weekdays, evenings and online.

### What can I do with this degree?

**Career Options:** Become a teacher's aide, lead teacher or director of a pre-school center, or open your own home child care center.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Desert Vista Campus

**Department/Contact Information:**  
 Center for Early Childhood Studies: 206-5245  
 Dean: 206-5098  
 Lead Faculty: 206-5107  
 Program/Major Codes: **AASECS/ECS**

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	1-3
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<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.**

ECE 112	Music and Art for Children (F-Sp).....	3
ECE 117	Child Growth and Development (F-Sp-Su) .....	3
ECE 190*	Early Childhood Education: Theory to Practice (F-Sp) .....	4
ECE 200	Foundations of Early Childhood Education (F-Sp).....	3
or CDA 102	The Child's Total Learning Environment (F-Sp-Su) .....	1
and CDA 121	Techniques for Observing Children (F-Sp-Su) .....	1
and CDA 271	Professionalism in Childcare(F-Sp-Su) .....	1
ECE 226	Teaching Techniques and Behavior Management (F-Sp-Su) .....	3
ECE 228*	The Young Child: Family, Culture, and Community (F-Sp-Su).....	3
ECE 240	Assessment of Young Children(F-Sp-Su).....	3
Electives: Contact the Center for Early Childhood Studies to select appropriate electives, which can include additional ECE and/or CDA courses.....		19
<b>Subtotal .....</b>		<b>41</b>
<b>Total credits as displayed.....</b>		<b>60-62</b>

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

## Early Childhood Education - Associate of Arts for Transfer

Learn how to effectively teach young children while preparing to transfer to a four-year degree program. Complete this program by taking classes exclusively in the evenings, exclusively online, or in a combination of weekdays and evenings and/or online.

### What can I do with this degree?

**Career Options:** Become a teacher's aide, lead teacher or director of a pre-school center, paraprofessional, or instructional aide, or open your own home child care center.

**Academic Options:** Transfer to a four-year degree program in early childhood education/elementary education.

**Location:** Desert Vista Campus.

**Department/Contact Information:**  
 Center for Early Childhood Studies: 206-5245  
 Dean: 206-5098  
 Lead Faculty: 206-5107  
 Program/Major Codes: **AOAECE/ECE**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	†
ART 105 and HIS 101 fulfill this requirement.	

Biological and Physical Sciences.....	†
BIO 105IN and the Earth/Space or Physical Science course fulfill this requirement	
Mathematics .....	†
MAT 142 fulfills this requirement.	
Social and Behavioral Sciences .....	†
GEO 103 and POS 210 fulfill this requirement	
Other Requirements.....	†
HIS 141 and either the language or the SPE course fulfill this requirement.	
Special Requirements	
HIS 101 and 141 fulfill the I, C, and G requirements.	
<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.

ECE 112	Music and Art for Children (F-Sp).....	3
ECE 117*	Child Growth and Development (F-Sp-Su) .....	3
ECE 190*	Early Childhood Education: Theory to Practice (F-Sp) .....	4
ECE 228*	The Young Child: Family, Culture and Community (F-Sp-Su) .....	3
ECE 240	Assessment of Young Children (F-Sp-Su).....	3
<b>Subtotal .....</b>		<b>16</b>

### Required Support Courses

ART 105	Exploring Art and Visual Culture (F-Sp-Su).....	3
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#### History:

Complete both courses.....	6
HIS 101	Introduction to Western Civilization I (F-Sp-Su)
HIS 141	History of the United States I (F-Sp-Su)

#### Life Science:

BIO 105IN	Environmental Biology (F-Sp-Su).....	4
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#### Earth/Space Science or Physical Science:

Choose one of the following: .....	4-5
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AST 101/101LB (n/o)	
or AST 101IN	Solar System (F-Sp-Su)
AST 102/102LB (F-Sp)	
or AST 102IN	Stars, Galaxies, Universe (F-Sp-Su)
CHM 121/121LB (n/o)	
or CHM 121IN	Chemistry and Society I (Sp)
CHM 130*/130LB*	
or CHM 130IN*	Fundamental Chemistry (F-Sp-Su) SUN# CHM 1130
CHM 151*/151LB* (n/o)	
or CHM 151IN*	General Chemistry I (F-Sp-Su) SUN# CHM 1151
GEO 101	Physical Geography: Weather and Climate (F-Sp-Su)
GEO 102	Physical Geography: Land Forms and Oceans (F-Sp-Su)
GLG 101IN	Physical Geology (F-Sp-Su) SUN# GLG 1101
GLG 102IN*	Historical Geology (F-Sp)
PHY 121*/121LB*	
or PHY 121IN*	Introductory Physics I (F-Sp-Su) SUN# PHY 1111

#### Mathematics:

Complete all three courses .....	9
MAT 142*	Topics in College Mathematics (or any Math course numbered 151 or higher) (F-Sp-Su)
MAT 146*	Mathematics for Elementary Teachers I (F-Sp)
MAT 147*	Mathematics for Elementary Teachers II (F-Sp)

#### Civics and Government:

POS 210	National and State Constitutions (F-Sp-Su) .....	3
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#### Elementary Science:

SCT 280*	Process of Science for Elementary Educators I (F) .....	3
SCT 281*	Process of Science for Elementary Educators II (Sp).....	3

#### Social and Behavioral Science:

GEO 103	Cultural Geography (F-Sp-Su) .....	3
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<b>Speech Communication or Language</b> .....	3-5
Students planning to attend ASU or NAU may complete SPE 102 or SPE 110 or a language course; students planning to attend the UA must complete one of the following: CHI 202, FRE 202, GER 202, ITA 202, JPN 202, LAT 202, RUS 202, SLG 202, SPA 202, or SPA 203.	
<b>Subtotal</b> .....	<b>41-44</b>
<b>Total credits as displayed</b> .....	<b>63-66</b>

- † 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 course has a prerequisite, co-requisite, or recommendation. See course description section.

## ECE Endorsement for Teachers Birth - Age 8 — Post-Degree Certificate for Direct Employment

This program can help Certified Elementary and Special Education teachers prepare to apply for Arizona’s Early Childhood, Birth-Age 8 Endorsement. This standards-based curriculum emphasizes technology, diversity, and the application of current early childhood theory. 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 evenings and online.

**Before enrolling in this program**, you must have earned a bachelor’s degree from an accredited institution and have or be working on a state Elementary Education or Special Education certificate. Students should consult with the Arizona Department of Education certification unit prior to enrolling in classes. Previous coursework and/or work experience may apply toward the endorsement.

### What can I do with this certificate?

- Career Options:** Meets requirements to teach in public school Birth-3rd grade classrooms after July 1, 2012. Recommended for 1st - 3rd grade classrooms.
- Academic Options:** Continue your education with post-graduate work in education or a subject discipline, or pursue other specialized endorsements offered by Pima.
- Locations:** Desert Vista Campus. Classes can be taken at multiple campuses
- Department/Contact Information:**  
Center for Early Childhood Studies: 206-5245  
Dean: 206-5098  
Lead Faculty: 206-5107  
Program/Major Codes: **CRDECE/ECK**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ECE 108	Literature/Social Studies for Children (F) .....	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-Su) .....	3
ECE 124*	Math and Science for Children (F-Sp).....	3
ECE 125	Nutrition, Health, and Safety for the Young Child (F-Sp).....	3
ECE 190* †	Early Childhood Education: Theory to Practice (F-Sp) .....	4
ECE 200	Foundations of Early Childhood Education (F-Sp).....	3
or CDA 102	The Child’s Total Learning Environment (F-Sp-Su) .....	1
and CDA 121	Techniques for Observing Children (F-Sp-Su) .....	1
and CDA 271	Professionalism in Childcare (F-Sp-Su) .....	1
ECE 211*	Inclusion of Young Children with Special Needs (F-Sp).....	3
ECE 226	Teaching Techniques and Behavior Management (F-Sp-Su) .....	3
ECE 228*	The Young Child: Family, Culture, and Community (F-Sp-Su).....	3
ECE 240	Assessment of Young Children (F-Sp-Su).....	3
<b>Total credits as displayed</b> .....		<b>37</b>

- \* This course has a prerequisite, co-requisite, or recommendation. See course description section.
- † Students may request a waiver for the ECE 190 requirement provided one year of full-time early childhood (birth-preschool) experience can be documented, as per the Arizona Department of Education.

# 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 with a concentration in Early Childhood or Elementary Education and transfer to a four-year degree program. Complete this program by taking classes in a combination of weekdays and evenings, and/or online.

### 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.

Program/Major/Concentration Codes: **AOAEDUCATION/EDU/\*\*\*\*** (see concentration codes below)

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	†
ART 105 and HIS 101 fulfill this requirement.	
Biological and Physical Sciences.....	†
Earth/Space or Physical Science courses fulfill this requirement	
Mathematics .....	†
MAT 142 fulfills this requirement.	
Social and Behavioral Sciences .....	†
GEO 103 and POS 210 fulfill this requirement	
Other Requirements.....	†
HIS 141 and either the language or SPE course fulfill this requirement.	
Special Requirements	
HIS 101 and 141 fulfill the I, C, and G requirements.	
<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.

EDU 202	Introduction to the Exceptional Learner (F-Sp) .....	3
<b>Subtotal</b> .....		<b>3</b>

### Required Support Courses

ART 105	Exploring Art and Visual Culture (F-Sp-Su).....	3
<b>History:</b>		
Complete both courses.....		
6		
HIS 101	Introduction to Western Civilization I (F-Sp-Su)	
HIS 141	History of the United States I (F-Sp-Su)	
<b>Life Science:</b>		
BIO 105IN	Environmental Biology (F-Sp-Su).....	4
<b>Earth/Space Science or Physical Science:</b>		
Choose one of the following: .....		
4-5		
AST 101/101LB	(n/o)	
or AST 101IN	Solar System (F-Sp-Su)	

AST 102/102LB or AST 102IN	(F-Sp) Stars, Galaxies, Universe (F-Sp-Su)	
CHM 121/121LB or CHM 121IN	(n/o) Chemistry and Society I (Sp)	
CHM 130*/130LB* or CHM 130IN	Fundamental Chemistry (F-Sp-Su) SUN# CHM 1130	
CHM 151*/151LB*(n/o) or CHM 151IN*	General Chemistry I (F-Sp-Su) SUN# CHM 1151	
GEO 101	Physical Geography: Weather and Climate (F-Sp-Su)	
GEO 102	Physical Geography: Land Forms and Oceans (F-Sp-Su)	
GLG 101IN	Physical Geology (F-Sp) SUN# GLG 1101	
GLG 102IN*	Historical Geology (F-Sp)	
PHY 121*/121LB* or PHY 121IN*	Introductory Physics I (F-Sp-Su) SUN# PHY 1111	
<b>Elementary Science:</b>		
SCT 280*	Process of Science for Elementary Educators I (F) .....	3
SCT 281*	Process of Science for Elementary Educators II (Sp).....	3
<b>Mathematics:</b>		
Complete all three courses: .....		9
MAT 142*	Topics in College Mathematics (or any Math course numbered 151 or higher) (F-Sp-Su)	
MAT 146*	Mathematics for Elementary Teachers I (F-Sp)	
MAT 147*	Mathematics for Elementary Teachers II (F-Sp)	
<b>Civics and Government:</b>		
POS 210	National and State Constitutions (F-Sp-Su) .....	3
<b>Social and Behavioral Science:</b>		
GEO 103	Cultural Geography (F-Sp-Su) .....	3
<b>Subtotal .....</b>		<b>38-39</b>
<b>Core Concentrations - A grade of C or better is required for graduation.</b>		
Complete one of the following concentrations: .....		15-21
<b>Elementary Education</b> (Concentration Code: EDUL)		
EDU 200*	Introduction to Education (F).....	3
EDU 201	Diversity in Education (F).....	3
EDU 206	Relationships in Classroom Settings (F-Sp).....	3
ETT 101	Introduction to Educational Technology (F) .....	3
Speech Communication or Language:.....		3-5
Students planning to attend ASU or NAU may choose one of the following speech courses or a language course:		
SPE 102	Introduction to Speech Communication (F-Sp-Su) SUN# COM 1100	
SPE 110	Public Speaking (F-Sp-Su)	
Students planning to attend the UA must complete a 4th semester language course from the following:		
CHI 202, FRE 202, GER 202, GRK 202, ITA 202, JPN 202, LAT 202, RUS 202, SPA 202 or 203, SLG 202		
<b>Subtotal .....</b>		<b>15-17</b>
<b>Early Childhood Education</b> (Concentration Code: EDUC)		
(This option is for students planning to transfer to UA South for the B.S. in Elementary Education, as well as the Early Childhood Education Endorsement. This concentration requires more credits than a typical transfer degree due to the additional state-mandated endorsement coursework.)		
ECE 117	Child Growth and Development (F-Sp-Su) .....	3
ECE 200	Foundations of Early Childhood in Education (F-Sp).....	3
ECE 228*	The Young Child: Family, Culture and Community (F-Sp-Su) .....	3
ECE 240*	Assessment of Young Children (F-Sp-Su).....	3
ECE 190**	Early Childhood Education: Theory to Practice (F-Sp).....	4
Second Language .....		4-5
Completion of a Language course numbered 102*, second semester level.		
<b>Subtotal .....</b>		<b>20-21</b>
<b>Total credits as displayed.....</b>		<b>62-69</b>

† 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 course has a prerequisite, co-requisite, or recommendation. See course description section.

\*\* Students may request a waiver for the ECE 190 requirement provided one year of full-time early childhood (pre-K and/or Kindergarten) experience can be documented.

## 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 exclusively online.

**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.

**Location:** Community Campus

**Department/Contact Information:**

Advanced Program Manager: 520-206-6566

Department Chair: 520-206-6345

**Program/Major Codes:** Special Admissions Requirements—See an advisor.

The Post-Degree Teacher Certification Program for Elementary or Secondary Education Teacher is undergoing revision. New students will not be admitted during this process; however, information sessions about the revised program will begin in Summer 2013. Please contact the Teacher Education Office for additional information at 520-206-6566 or [teachereducation@pima.edu](mailto:teachereducation@pima.edu). More information can be found at <http://www.pima.edu/programs-courses/credit-programs-degrees/education/teacher-education/elementary-secondary-post-degree.html>.

## 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 classes exclusively on exclusively online. A suggested completion schedule is available online at:

[http://www.pima.edu/program/teacher-ed/esl\\_endorsement\\_schedule.shtml](http://www.pima.edu/program/teacher-ed/esl_endorsement_schedule.shtml).

**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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRDENDORSEA.pdf>

**Location:** Community Campus

**Department/Contact Information:**

Dean: 206-6508

Lead Faculty: 206-6345

**Program/Major Codes:** CRDENDORSEA/EDE

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
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).....	3
EDU 281*	Structured English Immersion Methods (Sp)	
or EDU 286*	Structured English Immersion Methods (Completion) (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 classes exclusively online. A suggested completion schedule (available at: [http://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.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRDENDORSEB.pdf>

**Location:** Community Campus

**Department/Contact Information:**

Dean: 206-6508??

Lead Faculty: 206-6345

Program/Major Codes: **CRDENDORSEB/EDM**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
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>

## Special Education Cross-Categorical Certification — Post Degree Certificate for Direct Employment

Prepare for Arizona Educator Cross Categorical K-12 teacher certification. Courses emphasize professional teaching standards, technology, diversity and current teaching theory. Complete this program by taking courses exclusively online.

**Program Prerequisites:** Before you can enroll, you must earn a bachelor's degree.

### What can I do with this certificate?

**Career Options:** Special Education K-12 Teacher.

**Academic Options:** Continue your education with post-graduate work in education or pursue other specialized endorsements offered by Pima.

**Location:** Community Campus

**Department/Contact Information:**

Advanced Program Manager: 520-206-6566

Department Chair: 520-206-6345

**Program/Major Codes:** Special Admissions Requirements—See an advisor.

The Post-Degree Teacher Certification Program for Special Education Cross-Categorical is undergoing revision. New students will not be admitted during this process; however, information sessions about the revised program will begin in Summer 2013. Please contact the Teacher Education Office for additional information at 520-206-6566 or [teachereducation@pima.edu](mailto:teachereducation@pima.edu). More information can be found at <http://www.pima.edu/programs-courses/credit-programs-degrees/education/teacher-education/special-education-post-degree.html>.

## Special Education Cross-Categorical Certification for Certified Teachers — Post Degree Certificate for Direct Employment

Students who have Elementary, Secondary, or Special Education teacher certification can prepare for Arizona Special Education Cross-Categorical K-12 Certification. Courses emphasize professional teaching standards, technology, diversity and current teaching theory. Complete this program by taking courses exclusively online.

**Program Prerequisites:** Before you can enroll, you must earn a bachelor's degree.

### What can I do with this certificate?

**Career Options:** Special Education K-12 Teacher.

**Academic Options:** Continue your education with post-graduate work in education or pursue other specialized endorsements offered by Pima.

**Location:** Community Campus

**Department/Contact Information:**

Advanced Program Manager: 520-206-6566

Department Chair: 520-206-6345

**Program/Major Codes:** Special Admissions Requirements—See an advisor.

The Post-Degree Teacher Certification Program for Special Education Cross-Categorical for Certified Teachers is undergoing revision. New students will not be admitted during this process; however, information sessions about the revised program will begin in Summer 2013. Please contact the Teacher Education Office for additional information at 520-206-6566 or [teachereducation@pima.edu](mailto:teachereducation@pima.edu). More information can be found at <http://www.pima.edu/programs-courses/credit-programs-degrees/education/teacher-education/special-education-post-degree.html>.

## Structured English Immersion (SEI) - Post-Degree Certificate

Prepare for Arizona's Structured English Immersion (SEI) endorsement with field-intensive, standards-based courses. Classes emphasize technology, diversity and current SEI theory. Complete this program by taking classes exclusively online.

**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:** SEI classroom teacher, resource teacher, or other SEI specialist.

**Academic Options:** Continue your education with post-graduate work in education or a subject discipline, or pursue other specialized endorsements offered by Pima.

**Location:** Community Campus

**Department/Contact Information:**

Dean: 206-6508??

Lead Faculty: 206-6345

**Program/Major Codes:** CRDESE/ESE

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
EDU 274* or EDU 287*	Structured English Immersion Foundations* (F) Structured English Immersion Foundations(Augmented Provisional) (F) .....	3
EDU 281* or EDU 286*	ESL - Structured English Immersion Methods* (Sp) Structured English Immersion Methods (Completion) (Sp).....	3
<b>Subtotal</b> .....		<b>6</b>

\* This course includes a Practicum. Upon registration, contact [teachereducation@pima.edu](mailto:teachereducation@pima.edu) or 520.206.6566 to arrange a practicum assignment.

# 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 technologies that enhance and support learning. Become familiar with productivity, school, and classroom management software. Use web-based applications for teaching and learning. Complete this program by taking classes exclusively online.

### What can I do with this certificate?

**Career Options:** Courses lead to the Associate of Arts in Elementary Education and can be used by K-12 teachers to meet No Child Left Behind (NCLB) Act requirements. Meets professional development requirements for state certification.

**Academic Options:** Continue your studies by pursuing the Advanced Educational Technology certificate.

**Location:** Community Campus

**Department/Contact Information:**

Dean: 206-6508

Lead Faculty: 206-6345

Program/Major Codes: **CRTINTEDUTEC/ETB**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ETT 101	Introduction to Educational Technology (F) .....	3
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.

# 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 by taking classes exclusively on weekdays or exclusively on evenings.

### 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 Information Packet form is available online at <http://www.pima.edu/programs-courses/credit-programs-degrees/public-safety/emt/admission-requirements.html>.

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, continue your studies by pursuing the Paramedic Associate of Applied Science Degree..

**Locations:** East Campus, Community Campus

**Department/Contact Information:**

Dean: 206-7694

EMT Lab: 206-7839

Program/Major Codes: **CRTEMEDTEC-B/EMS**

Course Number	Course Title	Credit Hours
<b>Required Core Course - A grade of C or better is required for graduation.</b>		
EMT 100*	Basic Emergency Medical Technology (F-Sp-Su).....	12
<b>Total credits as displayed.....</b>		<b>12</b>

## 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. Complete this program by taking classes exclusively on weekdays.

**Before enrolling in this program**, you must meet certain admission requirements:

- A. American Heart Association Basic Life Support for the Healthcare Provider certification card. This card must remain current throughout the paramedic program and the certification process
- B. Current EMT-Basic or EMT-Intermediate certification. This certification **MUST** remain current throughout the paramedic program and certificate process (a lapse in certification will result in immediate expulsion from the program) and be either:  
National Registry certification; or  
State of Arizona certification
- C. Documentation of being 18 years old.
- D. Reading assessment at the 9th grade level.
- E. For Paramedic courses, successful completion of a minimum of 24 contact hours of hazardous materials training that meets the requirements of the National Fire Protection Association's NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents, 1997 Edition; Competencies for First Responders at the Operations Level, is required.
- F. Current health insurance coverage. This coverage must remain current throughout the course of training and the certification process.
- G. Negative results of a 5 panel drug screening within 6 months of the course start date. Screening must include:
  - a. Marijuana
  - b. Cocaine
  - c. Barbiturates
  - d. Sedatives
  - e. Amphetamines
- H. Provide proof of immunity or immunization for the following:
  - a. Proof of negative TB test or chest X-ray within 6 months prior to application as defined in R9-25-308 (D) and proof of annual TB testing while enrolled in the program.
  - b. Measles (Rubeola)/Mumps/Rubella.
  - c. Tetanus/Diphtheria within the last 10 years.
  - d. Results of serological testing showing Hepatitis B (HBV) immunization, begin HBV vaccination series, or sign the release of liability claims/declination form.
- I. Successfully Screen for the following areas:
  - a. ALS written exam
  - b. Oral Board screening
  - c. Practicals screening

### What can I do with this degree?

**Career Options:** Paramedic

**Locations:** Community Campus

**Department/Contact Information:**

Dean: 206-6569

Program/Major Codes: **AASEMD/EMD**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement.....	6
Computer and Information Literacy Requirement.....	1-3
<b>Subtotal .....</b>	<b>19-21</b>

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 Paramedic Program.		
EMT 140	Pre-Hospital Trauma Life Support (**)	1.5
EMT 155	Advanced Medical Life Support (**)	1.5
EMT 158	Transition Training for EMT (**)	1.5
EMT 170*	ALS Operations (**)	1
EMT 205*	ALS Pharmacology and Medication Administration (**)	3
EMT 214*	ALS Advanced Special Considerations (**)	2.5
EMT 218*	Paramedic National Registry Preparatory Course (**)	3.5
EMT 219*	ALS Foundations (**)	1.5
EMT 221*	ALS Airway and Ventilation (**)	1.5
EMT 222*	ALS Patient Assessment and Assessment Based Management (**)	1.5
EMT 223*	ALS Trauma Emergencies and Systems (**)	2
EMT 224*	ALS Medical Emergencies (**)	4
EMT 225*	ALS Special Medical Considerations (**)	2
EMT 227LC*	ALS Practicum: Clinical Lab (**)	3
EMT 228LC*	ALS Practicum: Vehicular Lab (**)	3
EMT 230*	Basic ECG Interpretation (**)	1.5
EMT 242*	ALS Advanced Foundations (**)	2
EMT 244*	ALS Advanced Medical Emergencies (**)	2.5
EMT 247LC*	ALS Advanced Practicum: Clinical Lab (**)	3
EMT 248LC*	ALS Advanced Practicum: Vehicular Lab (**)	3
EMT 250	Advanced Cardiac Care (**)	1.5
EMT 252	Pediatric Advanced Life Support (**)	1.5
EMT 254*	Advanced ECG Interpretation (**)	3
EMT 258	Pediatric Education for Pre-Hospital Professionals (**)	1.5
or EMT 243*	Emergency Pediatric Care (EPC) Initial (**)	
EMT 263	Tox-Medic (**)	1.5
EMT 295*	ALS Independent Research (**)	3
<b>Subtotal</b>		<b>57</b>
<b>Total credits as displayed</b>		<b>76-78§</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.

\*\* Contact the department at 206-6569 for course offerings.

# Engineering

## Engineering—Associate of General Studies Degree

Prepare to transfer to a university to complete a bachelor's degree in engineering. Complete this program by taking classes exclusively on weekdays, or in a combination of weekdays and evenings/weekends.

### 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 to complete a bachelor's degree in Engineering. The courses listed in the Concentrations reflect requirements from the UA 2010-2011 catalog.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6763

Lead Faculty: 206-6679

Program/Major Codes: **AGSAGE/AGE/\*\*\*\*** (see concentration codes below)

### General Education Requirements - A grade of C or better is required for graduation.

Communication Requirement.....	†
WRT 101 and WRT 102 satisfy this requirement	
Analysis and Critical Thinking Requirement.....	†
CHM 151IN and MAT 220 fulfill this requirement	
Humanities and Social Science Requirement .....	†
Humanities and Social Science Electives fulfill this requirement	
Computer and Information Literacy Requirement .....	†
Core courses fulfill this requirement.	
Special Requirement	
The Social Science elective fulfills this requirement.	
<b>Subtotal .....</b>	<b>0¥</b>

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	General Chemistry I (F-Sp)	
or 151IN*	General Chemistry I (F-Sp-Su) SUN# CHM 1151 .....	5
ENG 102IN*	Problem-Solving and Engineering Design (F-Sp) SUN# EGR 1102.....	3
MAT 220*	Calculus I (F-Sp-Su) SUN# MAT 2220.....	5
MAT 231*	Calculus II (F-Sp-Su) SUN# MAT 2230 .....	4
MAT 241*	Calculus III (F-Sp) SUN# MAT 2241 .....	4
MAT 262*	Differential Equations (F-Sp-Su) SUN# MAT 2262 .....	3
<b>Subtotal .....</b>		<b>24</b>

### Communication

WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
<b>Subtotal .....</b>		<b>6</b>

### Math/Science

PHY 210/210LB*		
or 210IN*	Introductory Mechanics (F-Sp) .....	5
PHY 216/216LB*	Introductory Electricity and Magnetism (F-Sp)	
or 216IN*	Introductory Electricity and Magnetism (F-Sp) SUN# PHY 1131 .....	5
<b>Subtotal .....</b>		<b>10</b>

**Humanities Elective**

Complete one course from the following. Fulfills the AGECE 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 Elective**

Complete one course from the following. Fulfills the AGECE Cultural Diversity (C) requirement.

ANT 112, 127, 150, 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\*, 273

**Subtotal** ..... 3

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

Complete courses in one of the following concentration options ..... 14-18

Department faculty approval is strongly recommended when selecting a major or transferable electives.

**Aerospace Engineering Concentration** (Concentration Code: AGEA)

Complete 14-18 credits from the following list:.....

CHM 152/152LB*		
or 152IN	General Chemistry II (F-Sp-Su) SUN# CHM 1152	
or ENG 110IN*	Solid State Chemistry (F-Sp) .....	4-5
ENG 210*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 220*	Engineering Mechanics: Dynamics (F-Sp) .....	4
ENG 232*	Thermodynamics (Sp).....	4
ENG 260*	Electrical Engineering (F-Sp) .....	3

**Biomedical Engineering Concentration** (Concentration Code: AGED)

Complete 14-18 credits from the following list:

BIO 181IN*	General Biology I (F-Sp) SUN# BIO 1181.....	4
BIO 201IN*	Human Anatomy and Physiology (F-Sp-Su) SUN# BIO 2201 .....	4
BIO 202IN*	Anatomy and Physiology II (F-Sp-Su) SUN# BIO 2202.....	4
or BIO 182IN	General Biology II (Majors) (F-Sp) SUN# 1182	
CHM 152/152LB*		
or 152IN*	General Chemistry II (F-Sp-Su) SUN# CHM 1152.....	5
ENG 210*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 218*	Fluid Mechanics (Sp).....	3
ENG 260*	Electrical Engineering (F-Sp) .....	3

**Biosystems Engineering Concentration** (Concentration Code: AGEB)

Complete 14-18 credits from the following list:

BIO 181IN*	General Biology I (F-Sp) SUN# BIO 1181.....	4
BIO 182IN*	General Biology II (F-Sp) SUN# BIO 1182 .....	4
or BIO 201IN*	Anatomy and Physiology I (F-Sp-Su) SUN# BIO 2201	
or BIO 205IN*	Microbiology (F-Sp-Su) SUN# BIO 2205	
CHM 152/152LB*		
or 152IN*	General Chemistry II (F-Sp-Su) SUN# CHM 1152.....	5
ENG 122IN*	Engineering Graphics and Design With Solid Modeling (F-Sp) .....	3
ENG 210*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 218*	Fluid Mechanics (Sp).....	3

**Chemical Engineering Concentration** (Concentration Code: AGEH)

Complete 14-18 credits from the following list:

CHM 152/152LB*		
or 152IN*	General Chemistry II (F-Sp-Su) SUN# CHM 1152.....	5
CHM 235/235LB*	General Organic Chemistry I (n/o)	
or 235IN*	General Organic Chemistry I (F-Sp-Su) SUN# CHM 2235 .....	5
CHM 236/236LB*	General Organic Chemistry II (n/o)	
or 236IN*	General Organic Chemistry II (F-Sp-Su) SUN# CHM 2236.....	5
ENG 175IN*	Computer Programming for Engineering Applications (F-Sp).....	3



ENG 210*	Engineering Mechanics: Statics (F-Sp)	
or ENG 260*	Electrical Engineering (F-Sp) .....	3

**Civil Engineering Concentration** (Concentration Code: AGEV)

Complete 14-18 credits from the following list:

CHM 152/152LB*	General Chemistry II (F-Sp-Su) SUN# CHM 1152	
or 152IN*	Introductory Electricity and Magnetism (F-Sp) SUN# PHY 1131 .....	5
or PHY 216IN*		
BIO 181IN*	General Biology I (F-Sp) SUN# BIO 1181	
or GLG 101IN*	Physical Geology (F-Sp-Su) SUN# GLG 1101 .....	4
ENG 120IN*	Civil Engineering Graphics and Design (F) .....	3
ENG 130IN*	Elementary Surveying (Sp) .....	3
ENG 210*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 218*	Fluid Mechanics (Sp) .....	3
ENG 230*	Mechanics of Materials (F-Sp) .....	4

**Computer and Electrical Engineering Concentration** (Concentration Code: AGER)

Complete 14-18 credits from the following list:

ENG 175IN*	Computer Programming for Engineering Applications (F-Sp) .....	3
ENG 274IN*	Digital Logic (F) .....	3
ENG 282IN*	Basic Electric Circuits (Sp) .....	5
MAT 227*	Discrete Mathematics (n/o) SUN# MAT 2227 .....	4
PHY 221/221LB*	Introduction to Waves and Heat (Sp) .....	4

**Engineering Management Concentration** (Concentration Code: AGEE)

Complete 14-18 credits from the following list:

CHM 152/152LB*	General Chemistry II (F-Sp-Su) SUN# CHM 1152	
or 152IN	Solid State Chemistry (F-Sp) .....	4-5
or ENG 110IN*		
ENG 175IN*	Computer Programming for Engineering Applications (F-Sp)	
or CIS 131*	Programming and Problem Solving II (F-Sp) .....	3-5
ENG 210*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 232*	Thermodynamics (Sp) .....	4
ENG 260*	Electrical Engineering (F-Sp) .....	3

**General Engineering Concentration** (Concentration Code: AGEG)

Complete 14-18 credits, in consultation with Department faculty, from the courses required in the other Engineering concentrations. .... 14-18

**Industrial Engineering Concentration** (Concentration Code: AGEI)

Complete 14-18 credits from the following list:

CHM 152/152LB*	General Chemistry II (F-Sp-Su) SUN# CHM 1152	
or 152IN	Solid State Chemistry (F-Sp)	
or ENG 110IN*	General Biology I (F-Sp) SUN# BIO 1181 .....	4-5
or BIO 181IN*		
ENG 175IN*	Computer Programming for Engineering Applications (F-Sp) .....	3
ENG 210*	Engineering Mechanics: Statics (F-Sp)	
or ENG 232*	Thermodynamics (Sp)	
or ENG 260*	Electrical Engineering (F-Sp) .....	3-4
ENG 250*	Numerical Analysis for Engineers (F-Sp) .....	3
Electives**	Transferrable Electives .....	1-3**

**Materials Science and Engineering Concentration** (Concentration Code: AGET)

Complete 14-18 credits from the following list:

ENG 110IN*	Solid State Chemistry (F-Sp) .....	4
ENG 260*	Electrical Engineering (F-Sp) .....	3
Electives**	Transferrable Electives .....	7-11**

**Mechanical Engineering Concentration** (Concentration Code: AGEM)

Complete 14-18 credits from the following list:

CHM 152/152LB*	General Chemistry II (F-Sp-Su) SUN# CHM 1152	
or 152IN	Solid State Chemistry (F-Sp) .....	4-5
or ENG 110IN*	Engineering Graphics and Design With Solid Modeling (F-Sp) .....	3
ENG 122IN*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 210*	Engineering Mechanics: Dynamics (F-Sp) .....	4
ENG 220*	Mechanics of Materials (F-Sp) .....	4
ENG 230*		

**Mining Engineering Concentration** (Concentration Code: AGEN)

Complete 14-18 credits from the following list:

CHM 152/152LB*	General Chemistry II (F-Sp-Su)	
or 152IN*	General Chemistry II (F-Sp-Su) SUN# CHM 1152 .....	5
ENG 210*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 218*	Fluid Mechanics (Sp) .....	3
ENG 230*	Mechanics of Materials (F-Sp) .....	4
GLG 101IN*	Physical Geology (F-Sp-Su) SUN# GLG 1101 .....	4

**Optical Engineering Concentration** (Concentration Code: AGE0)

Complete 14-18 credits from the following lists:

**Opto-Mechanics Track:**

ENG 110IN*	Solid State Chemistry (F-Sp) .....	4
ENG 210*	Engineering Mechanics: Statics (F-Sp) .....	3
ENG 220*	Engineering Mechanics: Dynamics (F-Sp) .....	4
ENG 260*	Electrical Engineering (F-Sp) .....	3
OPS 201/201LB*	Geometrical and Instrumental Optics I (n/o) .....	4
OPS 202/202LB*	Geometrical and Instrumental Optics II (n/o) .....	4

**Opto-Electronics Track:**

ENG 110IN*	Solid State Chemistry (F-Sp) .....	4
ENG 274IN*	Digital Logic (F) .....	3
ENG 282IN*	Basic Electric Circuits (Sp) .....	5
OPS 201/201LB*	Geometrical and Instrumental Optics I (n/o) .....	4
OPS 202/202LB*	Geometrical and Instrumental Optics II (n/o) .....	4

**Systems Engineering Concentration** (Concentration Code: AGES)

Complete 14-18 credits from the following list:

CHM 152/152LB*	General Chemistry II (F-Sp-Su) SUN# CHM 1152	
or 152IN	Solid State Chemistry (F-Sp)	
or ENG 110IN*	General Biology I (F-Sp) SUN# BIO 1181 .....	4-5
or BIO 181IN*	Computer Programming for Engineering Applications (F-Sp) .....	3
ENG 175IN*	Numerical Analysis for Engineers (F-Sp) .....	3
ENG 250*	Electrical Engineering (F-Sp) .....	3
ENG 260*		

**Total credits as displayed..... 60-64**

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* For these concentrations, it is necessary to complete additional transferable electives in order to complete the minimum of 60 credits for this degree. You may choose to complete the AGEC-S by completing an Art course and another Social and Behavioral Science course from the AGEC list as part of these electives. Or, you may choose to transfer to the university without the electives, then transfer credits back to Pima to earn the associate's degree. See a Department faculty member for the selection of these courses.

# Fashion Design

Prepare for an exciting career in Fashion Design. Complete this program by taking classes in the Fashion Design and Clothing Department at Pima's West Campus.

## Fashion Design — Certificate for Direct Employment

Prepare for entry-level careers in fashion design for the apparel industry by studying fashion drawing, imaginative design, computer applications, draping, textiles, and pattern drafting. Complete the program by taking classes exclusively on weekdays.

### What can I do with this certificate?

**Career Options:** Seek entry level positions with apparel manufacturers, clothing retailers, tailoring or alteration businesses, speciality clothing shops, or start your own business.

**Academic Options:** Continue your studies by taking courses toward the AAA in Applied Arts. While this program was not designed to transfer to a 4-year university, some courses may transfer to meet major or elective requirements, or pursue a Bachelor of Applied Arts degree.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6690

Lead Faculty: 206-3028

Program/Major Codes: **CRTFDC/FDC**

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

FDC 110 – may be waived with consent of instructor .....	0-3
<b>Subtotal .....</b>	<b>0-3</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
FDC 111*	Clothing Construction II (F-Sp) .....	3
FDC 121*	Flat Pattern Making I (F) .....	3
FDC 122	History of Clothing (Sp) .....	3
FDC 126	Textiles (Sp) .....	3
FDC 141	Introduction to Fashion Design (Sp).....	3
FDC 144*	Fashion Drawing (Sp) .....	3
FDC 211*	Clothing Construction III (F-Sp) .....	3
FDC 288	Portfolio Preparation (F).....	3
<b>Subtotal .....</b>		<b>24</b>
<b>Total credits as displayed with prerequisites .....</b>		<b>24-27</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 classes in a combination of evenings and weekends.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTFIRESICIEN.pdf>

**Location:** Community Campus

**Department/Contact Information:**

Dean/Lead Faculty: 206-6350

Program/Major Codes: **CRTFIRESICIEN/FSI**

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

EMT 100*	Basic Emergency Medical Technology (F-Sp-Su).....	12
FSC 153	Hazardous Materials (F-Sp) .....	§
FSC 160	Wildland Firefighting (Sp).....	§
<b>Subtotal</b> .....		<b>12</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
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>Subtotal</b> .....		<b>20.75</b>
<b>Total credits as displayed</b> .....		<b>32.75</b>

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

§ Credits counted below.

## Fire and Emergency Services Higher Education (FESHE) — 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 in a combination of weekdays, evenings and weekends.

### What can I do with this degree?

**Career Options:** Seek employment or increase promotional opportunities in the fire service.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Community Campus

**Department/Contact Information:**

Dean/Lead Faculty: 206-6350

Program/Major Codes: **AASFIRESCIEN/FSC**/See Concentration Codes below.

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

Students must provide documented certification from the State of Arizona or National Registry of Emergency Medical Technicians stating that they have obtained their EMT-Basic credential.

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement.....	3
STU/MGT 230 fulfills 3 credits in the Leadership/Ethics category. Complete a course from the Humanities/Fine Arts or Social Science category.	
Computer and Information Literacy Requirement.....	†
CSA 100 fulfills this requirement.	
Special Requirement	
STU 230 fulfills this requirement.	
<b>Subtotal .....</b>	<b>9†</b>

### Required Core Courses - A grade of C or better is required for graduation.

FSC 101	Principles of Emergency Services (F-Sp) .....	3
FSC 120	Fire Behavior and Combustion (F-Sp) .....	3
FSC 123*	Building Construction Related to the Fire Service (F-Sp) .....	3
FSC 124*	Fire Prevention (F-Sp).....	3
FSC 126*	Fire Protection Systems in the Fire Service (F-Sp).....	3
FSC 127	Principles of Emergency Services Safety and Survival (F-Sp).....	3
<b>Subtotal .....</b>		<b>18</b>

### Required Support Courses

STU/MGT 230	Dynamics of Leadership (F-Sp).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
CSA 100	Computer and Information Literacy (F-Sp-Su).....	1
<b>Subtotal .....</b>		<b>10</b>

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

Complete one of the following concentrations:

**Fire and Emergency Service Higher Education (FESHE) (Concentration Code: FSCF)**

FSC 125	Fire Protection Hydraulics and Water Supply (F-Sp-Su).....	3
FSC 174*	Fire Investigation I (F-Sp-Su).....	3
FSC 230*	Fire Investigation II (F-Sp-Su).....	3
FSC 249*	Occupational Safety and Health for Emergency Services (F-Sp-Su) .....	3
FSC 250*	Principles of Fire and Emergency Service Administration (F-Sp-Su).....	3
FSC 251*	Hazardous Materials Chemistry (F-Sp-Su) .....	3
FSC 252*	Fire Service Strategy and Tactics (F-Sp-Su).....	3
FSC 253*	Legal Aspects of Emergency Services (F-Sp-Su).....	3
<b>Subtotal</b>	.....	<b>24</b>

**Vocational Academy (Concentration Code: FSVC)**

Complete 27 credits from any of the fire science course offerings listed below or the FESHE courses listed above:

FSC 110	Rope I (F) .....	1
FSC 111	Rope II (n/o) .....	1
FSC 112*	Rope III (n/o) .....	1
FSC 116*	Confined Space I for First Responders (n/o).....	1
FSC 117*	Confined Space II for First Responders (n/o) .....	1
FSC 118*	Swift Water Rescue for First Responders (n/o) .....	1
FSC 121*	Trench Rescue for First Responders (n/o) .....	1
FSC 122*	Structural Collapse Rescue for First Responders (n/o) .....	1
FSC 130	Strength and Fitness for Fire Science (F-Sp).....	2.5
FSC 149	Fire Operations I (F-Sp) .....	4
FSC 150*	Fire Operations II (F-Sp) .....	4
FSC 153	Hazardous Materials (F-Sp) .....	1.5
FSC 154*	Advanced Fire Prevention (n/o).....	3
FSC 160	Wildland Firefighting (F-Sp).....	3
FSC 163*	Fire Apparatus and Equipment (F) .....	3
FSC 168*	Special Hazard Tactical Problems (n/o).....	3
FSC 170A*	Fire Science Leadership I (n/o).....	1
FSC 170B*	Fire Science Leadership II (n/o).....	1
FSC 170C*	Fire Science Leadership III (n/o).....	1
FSC 170*	Fire Science Leadership.....	3
FSC 173*	Records and Reports (F-Sp).....	1
FSC 180*	Driver Training for Fire Science .....	3
FSC 189*	Current Issues in Fire Science (F-Sp) .....	2
FSC 260*	Fire and Emergency Services Instructor I (n/o).....	2
FSC 261*	Fire and Emergency Services Instructor II (n/o).....	2
FSC 270*	Leadership I for Fire Services Executives (n/o) .....	1
FSC 271*	Leadership II for Fire Services Executives (n/o).....	1
FSC 272*	Leadership III for Fire Services Executives (n/o).....	1
FSC 273*	Leadership IV for Fire Services Executives (n/o) .....	1
FSC 274*	Leadership V for Fire Services Executives (n/o).....	1
FSC 275*	Leadership VI for Fire Services Executives (n/o).....	1
FSC 280	Fire Chief Preparation (n/o).....	4
<b>Subtotal</b>	.....	<b>27</b>
<b>Total credits as displayed</b>	.....	<b>61-64</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

# 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 effective coaching techniques applicable to all sports. Complete this program by taking classes in a combination of evenings and online, or a combination of weekdays, evenings and online.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/program-courses/gainful-employment/CRTCOACHING.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996  
 Lead Faculty: 206-6996

Program/Major Codes: **CRTCOACHING/FSG**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
EDU 240*	Adolescent Development (F) .....	3
FSS 238*	Introduction to Sports Injury Management (F-Sp-Su) .....	3
FSS 271*	Sport Psychology (F-Sp) .....	3
FSS 272*	Coaching Techniques and Practices (F-Sp)	
or FSS 285*	Principles of Athletic Coaching (Sp).....	3
Physiology	Select one of the following: FSS 234, FSS 273, BIO 160IN, BIO 201IN*, or BIO 202IN* .....	3-4
<b>Total credits as displayed.....</b>		<b>15-16</b>

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

**Information:** To become certified by the Arizona State Department of Education to be a Head Coach in an Arizona high school without a teaching certificate you will have to apply to the state and submit your transcripts after you complete the Coaching Certificate. There are additional requirements such as having current CPR certification, documented coaching experiences and finger printing. For more information, please see [www.azed.gov/educator-certification](http://www.azed.gov/educator-certification).

## Fitness Professional Certificate for Direct Employment

Learn exercise and fitness theories and the skills to teach people how to safely exercise. The program may include work-related experiences at the Fitness and Conditioning Center and in local fitness clubs and agencies. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this degree?

**Career Options:** Work as a personal trainer and/or group fitness instructor in your own business or within a fitness club or agency. Take exams for certification through the American College of Sports Medicine (ACSM), the American Council of Exercise (ACE), or the National Strength and Conditioning Association (NSCA).

**Academic Options:** Pursue a physical education degree or a degree in Exercise Science (ASU or NAU); or transfer in Exercise and Wellness (ASU-East). Pursue a Coaching Certificate.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996  
 Lead Faculty: 206-6685

Program/Major Codes: **CRTFITNESS/FSP**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
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)	4
FSS 236*	Communication and Exercise Adherence (F)	2
FSN 154	Nutrition (F-Sp-Su)	
or FSS 241*	Nutrition for Exercise and Sport (F-Su)	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
<b>Subtotal</b>		<b>20</b>
<b>Required Support/Elective Courses</b>		
Select 6 credits from the following list:		
FSS 238*	Introduction to Sports Injury Management (F-Sp-Su)	3
FSS 260*	Business Practices for the Personal Trainer (Sp)	3
FSS 262*	Personal Trainer: Special Populations ((Sp)	2
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
FSS 291*	Fitness and Sports Sciences Internship (n/o)	3
<b>Subtotal</b>		<b>6</b>
<b>Total credits as displayed</b>		<b>26</b>

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

## Physical Education, Exercise and Wellness, Athletic Trainer

A student planning to transfer to obtain a bachelor's degree in Physical Education, Exercise and Wellness, or Athletic Trainer should follow the Associate of Arts Degree for Transfer in Liberal Arts. A student should meet with Fitness and Sport Science faculty or an advisor to plan courses. Students who plan to transfer should contact an advisor from their chosen school and/or use a transfer guide for verification of transfer courses.



# 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. Complete this program by taking classes in a combination of weekdays and weekends.

**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.
- More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTFORENSICS.pdf>
- Location:** Community Campus
- Department/Contact Information:**  
 Dean/Lead Faculty: 206-6350  
 Program/Major Codes: **CRTFORENSICS/CSM**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CSM 100	Intro 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).....	1
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
<b>Subtotal</b> .....		<b>9.5</b>
<b>Required Support Courses</b>		
AJS 101	Introduction to Administration of Justice Systems (F-Sp-Su).....	3
AJS 124	Ethics and the Administration of Justice (F).....	3
AJS 201	Rules of Evidence (F).....	3
Any BIO or CHM course .....		4
<b>Subtotal</b> .....		<b>13</b>
<b>Total credits as displayed</b> .....		<b>22.5</b>

# Fraud Examination

## Fraud Examination — Certificate for Direct Employment

Get an introduction to fraud examination principles while preparing for the Certified Fraud Examiner (CFE) examination. Complete this program by taking classes exclusively in the evenings.

### What can I do with this certificate?

**Career Options:** Enhance your opportunity for advancement in several career fields including accounting, business, law enforcement, and loss prevention.

**Academic Options:** Continue your studies by taking classes toward an Associate of Applied Science or Associate of Business Administration degree.

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7063

Program/Major Codes: **CRTACF/ACF**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201 .....	3
ACC 260*	Principles of Fraud Examination (Sp).....	3
ACC 267*	Computer Fraud Detection (n/o) .....	1
FIN 100	Basic Principles of Organizational Finance (Sp) .....	1
FIN 217*	Analyzing Financial Data (Sp).....	1
<b>Total</b> .....		<b>9</b>

\* 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 by taking classes exclusively on weekdays, exclusively evenings, or in a combination of weekdays and evenings.

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

- Career Options:** Select courses to fit careers of your choice.
- Academic Options:** Continue taking classes toward a transfer degree.
- Locations:** All campuses
- Program/Major Codes: **AGSGENRSTUDY/AGS**

**General Education Requirements - A grade of C or better is required for graduation.**

*Course lists for each General Education category listed below can be found starting on page 55.*

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	1-3
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>19-21</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
Electives .....		39-41
Complete courses numbered 100 or higher. See an advisor to develop an education plan.		
<b>Subtotal .....</b>		<b>39-41</b>
<b>Total credits as displayed.....</b>		<b>60</b>

## 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 geology faculty or an advisor to plan their course of study using the appropriate transfer guide.

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### *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, government, and technical service firms.

**Academic options:** Continue studies towards a bachelor of science in geology, geosciences, geological engineering, engineering, or education.

# Health Information Management

## Health Information Technology — Associate of Applied Science

Prepare for a career as a medical billing and coding specialist or other HIT professional. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this degree?

**Career Options:** Find entry-level employment as a medical coder, medical billing and insurance claims specialist, or physician or hospital coder.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7174 Lab

Program/Major Codes: **AASOAH/OAH**

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirement.

Complete CSA 100 and/or have a keyboarding proficiency at 35+ wpm .....0-1  
**Subtotal** ..... **0-1**

Course Number	Course Title	Credit Hours
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### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement..... †	WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....2	BIO 160IN fulfills 4 credits of this requirement. Complete another course from the Math, Science, or Critical Thinking category. The math competency must be met.	
Humanities and Social Science Requirement .....6		
Computer and Information Literacy Requirement ..... †	CSA 101 fulfills this requirement.	
Special Requirement	The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal</b> .....		<b>8¥</b>

### Required Core Courses - A grade of C or better is required for graduation.

HIT 100	Introduction to Health Information Management (F-Sp) .....	3
HIT 101*	Introduction to ICD Coding (F-Sp).....	3
HIT 102*	CPT Coding (F-Sp).....	3
HIT 105	Medical Terminology (Sp) .....	4
HIT 112*	Health Insurance and Medical Billing (Sp).....	3
HIT 125	Pathophysiology and Pharmacology for Health Information Technology (Sp) .....	4
HIT 175	Health Information Statistics and Research (F-Sp) .....	4
HIT 202*	Coding Certification Preparation (F-Sp) .....	3
HIT 210*	Medical Quality Assurance and Supervision (F-Sp).....	3
HIT 211*	Medicolegal Aspects in Health Information Management (F).....	3
HIT 225	Health Management Information Systems Projects (Sp) .....	3
or HIT 290	Health Information Technology Internship (F-Sp)	
<b>Subtotal</b> .....		<b>36</b>

**Required Support Courses - A grade of C or better is required for graduation.**

BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-Su) .....	4
CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
CSA 110	Spreadsheets: Microsoft Excel (F-Sp-Su) .....	3
WRT 101	Writing I (F-Sp-Su) .....	3
WRT 102	Writing II (F-Sp-Su) .....	3
<b>Subtotal</b> .....		<b>16</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>60-61</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Health Information Technology — Certificate for Direct Employment

Become a Health Information Technician, specializing in medical billing and insurance, coding, front office support, or health information management. Many of the certificate options can be completed by taking classes in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Become a coder, insurance or medical records technician, or professional 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTOAH.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7174 Lab

Program/Major/Concentration Codes: **CRTOAH/OAM/\*\*\*\*** (see concentration codes below)

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirement.

CSA 100	Computer Literacy (F-Sp-Su) .....	1
<b>Subtotal</b> .....		<b>1</b>

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-Su) .....	4
HIT 100	Introduction to Health Information Management (F-Sp) .....	3
HIT 105	Medical Terminology (Sp) .....	4
HIT 125*	Pathophysiology and Pharmacology for HIT (Sp) .....	4
<b>Subtotal</b> .....		<b>15</b>

### Core Concentrations - A grade of C or better is required for graduation.

Complete one of the following concentrations .....

**Medical Billing and Coding** (Concentration Code: OAHB)

HIT 101*	Introduction to ICD Coding (F-Sp) .....	3
HIT 102*	CPT Coding (F-Sp) .....	3
HIT 112*	Health Insurance and Medical Billing (Sp) .....	3
HIT 202	Coding Certification Preparation (F-Sp)	
or HIT 290	Health Information Technology Internship (F-Sp) .....	3
<b>Subtotal</b> .....		<b>12</b>

**Medical Front Office Support** (Concentration Code: OAHF)

CSA 110*	Spreadsheets: Microsoft Excel (F-Sp-Su) .....	3
CSA 120	Word Processing: Word (F-Sp) .....	3
HIT 112*	Health Insurance and Medical Billing (Sp).....	3
HIT 225*	Health Management Information Systems Projects (Sp) .....	3
or HIT 290	Health Information Technology Internship (F-Sp)	
<b>Subtotal</b> .....		<b>12</b>
<b>Health Information Management</b> (Concentration Code: OAHM)		
HIT 145	Introduction to Health Data Management (Sp) .....	2
HIT 175	Health Information Statistics and Research (Sp) .....	4
HIT 210	Medical Quality Assurance and Supervision (F-Sp).....	3
HIT 225*	Health Management Information Systems Projects (Sp) .....	3
or HIT 290	Health Information Technology Internship (F-Sp)	
<b>Subtotal</b> .....		<b>12</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>28</b>

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

# 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.

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## *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



# 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. Complete this certificate by taking classes exclusively on weekdays, or in a combination of weekdays and evenings.

**Before enrolling in this program**, students must meet certain requirements:

- 1.a. Incoming freshmen, with less than 12 college credits, must have maintained a GPA of at least 3.5 at an accredited high school, and scored 90 or higher on both the reading and writing portions of the College assessment tests.  
OR
- 1.b. Continuing students must have completed at least 12 college credits in courses numbered 100 or higher, with a GPA of 3.5 or better.
2. Complete HON 101: Honors Colloquium with a grade of B or better.

Program/Major Codes: **CRTHON/HON**

### 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
<b>Required Core Course - A grade of B or better is required for graduation.</b>		
HON 101*	Honors Colloquium (F-Sp)	3
<b>Subtotal</b>		<b>3</b>

### Required Support Courses - A grade of B or better is required for graduation.

Electives - Select a minimum of 12 credits from the following:

HON 210	College Honors Advisory Council (F-Sp)	1
HON 244*	Honors Field Excursions (n/o)	1-3
HON 296*	Honors Independent Study Project (F-Sp)	1-3
WRT 101HC*	Writing I: Honors (F-Sp)	3
WRT 102HC*	Writing II: Honors (Sp)	3
Honors 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.

\*\*\* To start an Honors Contract you must have completed HON 101. Meet with an Honors Coordinator at any campus or contact us at <http://www.pima.edu/programs-courses/honors/honors-contact-us.html>

# 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. Earn credit for co-op work experience. Complete this program exclusively on weekdays or in a combination of weekdays and evenings and/or online.

### What can I do with this degree?

**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. This program does not transfer to Arizona State University or The University of Arizona.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTHRM.pdf>

**Location:** Northwest Campus

**Department/Contact Information:**

Dean: 206-2216

Lead Faculty: 206-2176

Program/Major Codes: **CRTHRM/HRC**

Course Number	Course Title	Credit Hours
<b>Required Core Course - 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 (F)	3
CSA 100*	Computer Literacy (F-Sp-Su)	1
CSA 210*	Microsoft Excel Fundamentals (F-Sp-Su)	2
HRM 199/199WK*	Introductory Co-op/Introductory Co-op Work: Hotel and Restaurant Management (F-Sp)	
or		
HRM 299/299WK*	Advanced Co-op/Advanced Co-op Work: Hotel and Restaurant Management (F-Sp)	3
<b>Subtotal</b>		<b>12</b>

### Required Support Courses

Choose 9 or more credits from the following list:

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 (F)	3
HRM 150	Executive Housekeeping (F-Sp)	3
HRM 245*	Hospitality Human Resources 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-Restaurant Management. Complete this program by taking classes exclusively on weekdays, or in a combination of weekdays and evenings, and/or online.

### 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 AGEC-A requirements, allows students to waive 12 upper-division liberal studies courses upon transfer to NAU.

Students can complete a bachelor's degree in Hotel and Restaurant Management through NAU in Tucson.

**Location:** Northwest Campus

**Department/Contact Information:**

Dean: 206-2180

Lead Faculty: 206-2299

Program/Major Codes: **AOAHSPTALITY/HRM**

Course Number	Course Title	Credit Hours
<b>Arizona General Education Curriculum Requirements (AGEC-A) - A grade of C or better is required for graduation.</b>		
<i>Course lists for each General Education category listed below can be found starting on page 57.</i>		
	English Composition .....	6
	Humanities and Fine Arts .....	6
	Biological and Physical Sciences.....	8
	Mathematics .....	3
	Social and Behavioral Sciences .....	3
	ECN 200 fulfills 3 credits of this requirement. Complete a non-ECN course from this category.	
	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.	
<b>Subtotal</b> .....		<b>26‡</b>
<b>Required Core Courses - A grade of C or better is required.</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>
<b>Required Support Courses</b>		
ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201 .....	3
CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
HRM 110	Food Service Systems Management (F) .....	3
HRM 111*	Commercial Food (Sp) .....	3
ECN 200*	Basic Economic Principles (F-Sp-Su) .....	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.	
<b>Subtotal</b> .....		<b>26</b>
<b>Total credits as displayed</b> .....		<b>61</b>

† 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.

# 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTHUMANRES.pdf>

**Location:** Community Campus

**Department/Contact Information:**

Dean: 206-6424

Lead Faculty: 206-6471

Program/Major codes: **CRTHUMANRES/HRS**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
HRS 101	Introduction to Human Resources Management (F-Sp-Su).....	3
HRS 102	Human Resource Law (F) .....	3
HRS 103	Benefits and Compensation (F) .....	3
HRS 104	Job Requirements, Recruitment, and Personnel Selection (Sp) .....	3
HRS 105	Training and Development (Sp) .....	3
HRS 106	Labor Relations (Sp).....	3
<b>Total credits as displayed.....</b>		<b>18</b>

# 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 weekdays and evenings.

### What can I do with this degree?

**Career Options:** Become an interpreter for the deaf in a variety of community, educational, and webcam/phone relay settings. This degree is also helpful for those pursuing related career fields in assisting the deaf.

**Academic Options:** While this program was not originally designed for transfer to Arizona 4-year universities, most of the courses in the program are transferable, and recent changes have been made to align this program with the requirements for the 90/30 programs at NAU. See your ITP Faculty Advisor for specific electives accepted by the 90/30 programs.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6652

Program/Major Codes: **AAINTPTRAIN/ITP**

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

WRT 101*	Writing I (F-Sp-Su) .....	5
SLG 101	American Sign Language I (F-Sp-Su) .....	4
SLG 102*	American Sign Language II (F-Sp-Su) .....	4
SLG 201*	American Sign Language III (F-Sp) .....	4
Complete or be concurrently enrolled in		
WRT 102*	Writing II (F-Sp-Su) .....	5
SLG 202*	American Sign Language IV (F-Sp) .....	4
Demonstrate reading competency at REA 112 level or higher .....		0-4
<b>Subtotal</b> .....		<b>16-20</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement .....	0
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement .....	2-3
MAT 142, 144 or 151 fulfills 3-4 credits of this requirement. Complete a course from the Science or Critical Thinking category.	
Humanities and Social Science Requirement .....	0
ANT 112 and SOC 201 fulfill this requirement.	
Computer and Information Literacy Requirement .....	0
CSA 101 or CIS 100 fulfill this requirement.	
Special Requirements	
Support courses fulfill the C or G requirements.	
<b>Subtotal</b> .....	<b>2-3</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ITP 105*	Beginning Fingerspelling and Numbers (F-Sp)	2
ITP 200*	Introduction to the Deaf Community (F)	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 American Sign Language Literature (Sp)	3
ITP 220*	Interpreting I (Sp)	4
ITP 250*	Interpreting II (F)	4
ITP 268*	Etymology (Sp)	4
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*	Topics in Interpreting (F)	3
ITP 290*	Interpreter Training Field Experience (F)	2
<b>Subtotal</b>		<b>47</b>
<b>Required Support Courses</b>		
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102	3
MAT 142*	Topics in College Mathematics (F-Sp-Su)	
or MAT 144*	College Algebra with Data Analysis (F-Sp)	
or MAT 151*†	College Algebra (F-Sp-Su) SUN# MAT1151	3-4
SOC 201	Race, Ethnicity, Minority Groups and Social Justice (F-Sp) SUN# SOC 2215	3
ANT 112	Exploring Non-Western Cultures (F-Sp-Su)	3
SPE 110	Public Speaking (F-Sp-Su)	3
CSA 101*	Computer Fundamentals (F-Sp-Su)	
or CIS 100	Introduction to Computers (F-Sp-Su)	3
<b>Subtotal</b>		<b>21-22</b>
<b>Total credits as displayed with program prerequisites</b>		<b>86-92</b>

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.  
 § Credits counted below.  
 † A higher level AGECEC MAT course can also meet the requirement.

# Law Enforcement

## Law Enforcement Academy — Certificate for Direct Employment

Learn the skills needed to begin a career in law enforcement while preparing for the licensure examination. Completion of the program exceeds the minimum P.O.S.T. requirements for entry-level employment as an Arizona peace officer. Students can complete this program by taking classes in a combination of evenings and weekends.

### Before enrolling in this program you must meet certain requirements:

- 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 P.O.S.T.) <http://www.azpost.state.az.us/>

### What can I do with this certificate?

**Career Options:** After passing the licensure examination, seek entry-level employment at an Arizona police officer.

**Academic Options:** Continue your studies by working toward an associate's degree in Law Enforcement.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/program-courses/gainful-employment/CRTLWY.pdf>

**Location:** Public Safety and Emergency Services Institute.

#### Department/Contact Information:

Director: 206-6484

Lead Faculty: 206-3963

Program/Major Codes: **CRTLWY/LWY**

Course Number	Course Title	Credit Hours
<b>General Education Requirements - A grade of C or better is required for graduation.</b>		
<i>Course lists for each General Education category listed below can be found starting on page 55.</i>		
	Communication Requirement.....	3
	Analysis and Critical Thinking Requirement.....	3
	<b>Subtotal .....</b>	<b>6</b>
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
LEA 110	Law Enforcement Academy Part I (**)	24
LEA 210	Law Enforcement Academy Part II (**)	23
	<b>Subtotal .....</b>	<b>47</b>
	<b>Total credits as displayed.....</b>	<b>53</b>

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

\*\* Contact the department at 206-3963 for course offerings.

## Law Enforcement Academy — Associate of Applied Science

Completion of the program meets and exceeds the minimum AZ P.O.S.T. requirements for entry-level employment as an Arizona peace officer. Complete the program by taking classes in a combination of evenings and weekends, or a combination of evenings, weekends and weekdays and/or online.

### What can I do with this degree?

**Career options:** Work in law enforcement and public safety. This AAS provides law enforcement officer training.

**Academic Options:** Transfer to a Bachelor's of Applied Science degree in Justice Systems and Policy Planning at Northern Arizona University.

**Location:** Community Campus

**Department/Contact Information:**

Program Staff: 206-6350

Program/Major Codes: **AASLEA/LEA**

### Before enrolling in this program you must meet certain requirements:

- 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
- Oral Board review
- Background investigation
- Medical evaluation
- Polygraph exam
- Other requirements that are specific to Arizona Peace Officer Standards and Training Board (Az P.O.S.T.)

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement.....	3
AJS 225 fulfills 3 credits of this requirement. Complete a course from the Humanities/Fine Arts or the Leadership/Ethics category.	
Computer Information and Literacy Requirement .....	1-3
<b>Subtotal .....</b>	<b>16-18</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

LEA 110	Law Enforcement Academy Part I (**)	24
LEA 210	Law Enforcement Academy Part II (**)	23
<b>Subtotal .....</b>		<b>47</b>

### Required Support Courses

AJS 101	Introduction to Administration of Justice Systems (F-Sp-Su)	3
AJS 225	Criminology (F)	3
<b>Subtotal .....</b>		<b>6</b>
<b>Total .....</b>		<b>69-71</b>

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

\*\* Contact the department at 206-3963 for course offerings.



# 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 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 or an advisor to plan their course of study using the appropriate transfer guide.

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## *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.

# 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 by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTMACHNTOOL.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7139

Program/Major/Concentration Codes: **CRTMACHNTOOL/MCT/MACO**

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

MAC 100	Introduction to Machine Tool (F) .....	3
MAC 110*	Manual Machine Shop (Sp) .....	4
MAC 130*	Machine Setup and Fixture Making (F) .....	3
<b>Subtotal</b> .....		<b>10</b>

### Required Support Courses

CAD 117	Print Reading with CAD for Manufacturing (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
GTM 105*	Applied Technical Mathematics (F-Sp) .....	3
<b>Subtotal</b> .....		<b>10</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>20</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: Manual Machinist Concentration

Gain skills in operating manual machines. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTMACHNTOOL.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7139

Program/Major/Concentration Codes: **CRTMACHNTOOL/MCT/MACM**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MAC 100	Introduction to Machine Tool (F-Sp-Su) .....	3
MAC 110*	Manual Machine Shop (Sp) .....	4
MAC 125*	Mechanical Inspection (F-Sp).....	4
MAC 130*	Machine Setup and Fixture Making (F).....	3
MAC 275	Applied Metallurgy (F-Sp) .....	4
<b>Subtotal</b> .....		<b>18</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading with CAD for Manufacturing (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
GTM 105*	Applied Technical Mathematics (F-Sp).....	3
<b>Subtotal</b> .....		<b>10</b>
<b>Total credits as displayed</b> .....		<b>28</b>

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

¥ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Machine Tool Technology — Certificate: Mechanical Inspector Concentration

Gain skills in mechanical inspection. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTMACHNTOOL.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7139

Program/Major/Concentration Codes: **CRTMACHNTOOL/MCT/MACI**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MAC 100	Introduction to Machine Tool (F) .....	3
MAC 110*	Manual Machine Shop (Sp) .....	4
MAC 125*	Mechanical Inspection (Sp).....	4
MAC 275	Applied Metallurgy (F-Sp) .....	4
<b>Subtotal</b> .....		<b>15</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading with CAD for Manufacturing (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
GTM 105*	Applied Technical Mathematics (F-Sp).....	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.

## 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 in the evenings or in a combination of evenings and weekdays and/or weekends.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTMACHNTOOL.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7139

**Entrance requirement:** Two years minimum manual machinist or CNC operator experience required, or MAC 110.

Program/Major/Concentration Codes: **CRTMACHNTOOL/MCT/MACC**

### General Education Requirements - A grade of C or better is required for graduation.

Communication Requirement.....	3
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 100	Introduction to Machine Tool (F) .....	3
MAC 110*	Manual Machine Shop (Sp).....	4
MAC 125*	Mechanical Inspection (Sp).....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F).....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F) .....	4
MAC 160*	Computer Numerical Control (CNC) Lathe Programming (n/o) .....	4
<b>Subtotal .....</b>		<b>23</b>

### Required Support Courses

CAD 117	Print Reading with CAD for Manufacturing (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
GTM 105*	Applied Technical Mathematics (F-Sp).....	3
<b>Subtotal .....</b>		<b>10</b>
<b>Total credits as displayed.....</b>		<b>36</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 by taking classes in a combination of weekdays and evenings or a combination of weekdays, evenings and weekends.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTMACHNTOOL.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7139

Program/Major/Concentration Codes: **CRTMACHNTOOL/MCT/MACP**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	3
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 - A grade of C or better is required for graduation.</b>		
MAC 100	Introduction to Machine Tool (F) .....	3
MAC 110*	Manual Machine Shop (Sp) .....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F).....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F) .....	4
MAC 160*	Computer Numerical Control (CNC) Lathe Programming (n/o) .....	4
MAC 257 *	Computer Aided Machining (CAM) I (F) .....	4
MAC 258*	Computer Aided Machining (CAM) II (Sp) .....	4
MAC 259*	Computer Aided Machining (CAM) III: Solid Modeling (Sp).....	4
<b>Subtotal .....</b>		<b>31</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading with CAD for Manufacturing (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
GTM 105*	Applied Technical Mathematics (F-Sp).....	3
<b>Subtotal .....</b>		<b>10</b>
<b>Total credits as displayed.....</b>		<b>44</b>

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

¥ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Machine Tool Technology — Certificate: Electrical Discharge Machine (EDM) Operator Concentration

Learn to operate electrical discharge machines. Complete this program by taking classes in a combination of evenings and weekends or a combination of weekdays, evenings and weekends.

### 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.
- More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTMACHNTOOL.pdf>
- Location:** Downtown Campus
- Department/Contact Information:**  
 Dean: 206-7134  
 Lead Faculty: 206-7139
- Program/Major/Concentration Codes: **CRTMACHNTOOL/MCT/MACE**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MAC 100	Introduction to Machine Tool (F) .....	3
MAC 110*	Manual Machine Shop (Sp) .....	4
MAC 140*	Introduction to Electrical Discharge Machining (Sp).....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F).....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F) .....	4
MAC 245*	Wire Electrical Discharge Machining and Programming I (Sp) .....	4
<b>Subtotal</b> .....		<b>23</b>
<b>Required Support Course</b>		
GTM 105*	Applied Technical Mathematics (F-Sp).....	3
<b>Subtotal</b> .....		<b>3</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: 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 in a combination of evenings and weekends or a combination of weekdays, evenings and weekends.

### 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.
- Location:** Downtown Campus
- Department/Contact Information:**  
 Dean: 206-7134  
 Lead Faculty: 206-7139
- Program/Major/Concentration Codes: **CRTMACHNTOOL/MCT/MACH**

<b>General Education Requirements - A grade of C or better is required for graduation.</b>		
<i>Course lists for each General Education category listed below can be found starting on page 55.</i>		
Communication Requirement.....		3
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 - A grade of C or better is required for graduation.</b>		
MAC 100	Introduction to Machine Tool (F) .....	3
MAC 110*	Manual Machine Shop (Sp).....	4
MAC 140*	Introduction to Electrical Discharge Machining (Sp).....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F).....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F) .....	4
MAC 245*	Wire Electrical Discharge Machining and Programming I (Sp) .....	4
MAC 257 *	Computer Aided Machining (CAM) I (F) .....	4
MAC 258*	Computer Aided Machining (CAM) II (Sp) .....	4
<b>Subtotal</b> .....		<b>31</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading with CAD for Manufacturing (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
GTM 105*	Applied Technical Mathematics (F-Sp).....	3
<b>Subtotal</b> .....		<b>10</b>
<b>Total credits as displayed</b> .....		<b>44</b>

† Core or support course(s) fulfill this requirement.  
 ¥ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## 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. Most concentrations in this program can be completed by taking classes in a combination of weekdays and evenings. The EDM Operator and the EDM, CNC Machinist can be completed by taking classes in a combination of evenings and weekends.

### What can I do with this degree?

**Career Options:** Begin a career in machine tool technology.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7139

Program/Major/Concentration Codes: **AASMACHNTOOL/MAC/\*\*\*\*** (see concentration codes below)

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	†
GTM 105 and MAC 275 fulfill this requirement.	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	†
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal</b> .....	<b>12¥</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MAC 100	Introduction to Machine Tool (F) .....	3
MAC 110*	Manual Machine Shop (Sp) .....	4
MAC 275	Applied Metallurgy (F-Sp) .....	4
<b>Subtotal</b> .....		<b>11</b>
<b>Required Support Courses</b>		
CAD 117	Print Reading with CAD for Manufacturing (F-Sp) .....	4
CAD 172*	Geometric Dimensioning and Tolerancing (F-Sp) .....	3
CSA 100*	Computer Literacy (F-Sp-Su) .....	1
GTM 105*	Applied Technical Mathematics (F-Sp) .....	3
<b>Subtotal</b> .....		<b>11</b>
<b>Core Concentrations - A grade of C or better is required for graduation.</b>		
Complete one of the following concentrations (options): .....		30
Department chair or faculty advisor approval is recommended in the selection of the core concentration and technical electives.		
<b>Machine Operator</b> (Concentration Code: MACO)		
MAC 130*	Machine Setup and Fixture Making (F) .....	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.		
<b>Subtotal</b> .....		<b>30</b>
<b>Manual Machinist</b> (Concentration Code: MACM)		
MAC 125*	Mechanical Inspection (Sp) .....	4
MAC 130*	Machine Setup and Fixture Making (F) .....	3
ELEC	Technical Electives .....	23
Complete 23 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.		
<b>Subtotal</b> .....		<b>30</b>
<b>Mechanical Inspector</b> (Concentration Code: MACI)		
MAC 125*	Mechanical Inspection (Sp) .....	4
ELEC	Technical Electives .....	26
Complete 26 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.		
<b>Subtotal</b> .....		<b>30</b>
<b>Computer Numerical Control (CNC) Machinist</b> (Concentration Code: MACC)		
MAC 125*	Mechanical Inspection (Sp) .....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F) .....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F) .....	4
MAC 160*	Computer Numerical Control (CNC) I: Lathe Programming (n/o) .....	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.		
<b>Subtotal</b> .....		<b>30</b>



**Computer Numerical Control (CNC) Programmer** (Concentration Code: MACP)

MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F).....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F).....	4
MAC 160*	Computer Numerical Control (CNC): Lathe Programming (n/o).....	4
MAC 257*	Computer Aided Machining (CAM) I (F).....	4
MAC 258*	Computer Aided Machining (CAM) II (Sp).....	4
MAC 259*	Computer Aided Machining (CAM) III: Solid Modeling (F-Sp-Su).....	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		
<b>Subtotal</b>	.....	<b>30</b>

**Electrical Discharge Machine (EDM) Operator** (Concentration Code: MACE)

MAC 140*	Introduction to Electrical Discharge Machining (Sp).....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F).....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F).....	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		
<b>Subtotal</b>	.....	<b>30</b>

**Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Machinist** (Concentration Code: MACH)

MAC 140*	Introduction to Electrical Discharge Machining (Sp).....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I (F).....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II (F).....	4
MAC 245*	Wire Electrical Discharge Machining and Programming I (Sp).....	4
MAC 257*	Computer Aided Machining (CAM) I (F).....	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		
<b>Subtotal</b>	.....	<b>30</b>
<b>Total credits as displayed</b>	.....	<b>64</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

# Mathematics

## Associate of Arts Degree for Transfer in Liberal Arts

A student planning to obtain a mathematics degree should follow the **Associate of Arts Degree for Transfer in Liberal Arts**. A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a mathematics faculty or an advisor to plan courses. The student who plans to transfer to an upper division school to complete his/her bachelor's 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**

# Medical Assistant

## Medical Assistant — Certificate for Direct Employment

Learn advanced skills in patient care and prepare to take exams for licensure. Concentrations can be in either the front or back office, or for the full medical assistant who has training in both environments. This certificate is offered at the Center for Training and Development, Desert Vista Campus and earns college credit. Complete this program exclusively by taking classes exclusively in the evenings.

**Before enrolling in this program**, students must take the Compass assessment and must meet the following scores:

- Reading: 65
- Math: 30
- Writing: 50

Students must also present evidence they have earned first aid/CPR certification from a recognized training provider.

### What can I do with this certificate?

**Career Options:** Upon completion of this certificate, students are eligible to take the American Medical Technologist Exam for Medical Assistants. Work as a Medical Assistant in physicians' offices, medical centers, urgent care facilities, and clinics.

**Academic Options:** Take courses to qualify as a medical coding and billing specialist or practical nurse.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/program-courses/gainful-employment/CRTHPM.pdf>

**Location:** Desert Vista Campus

**Department/Contact Information:**

Dean: 206-5142

Lead Faculty: 206-5142

Program/Major/Concentration Codes: **CRTHPM/HPM/\*\*\*\*** (see concentration codes below)

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
HCA 119	Human Anatomy and Physiology for Health Care (**)	2
MDA 120	Medical Assistant Profession (**)	2
MDA 121	Medical Assistant Skills for Success (**)	2
MDA 124	Medical Terminology for Health Care Workers (**)	2
<b>Subtotal</b>		<b>8</b>
<b>Core Concentrations - A grade of C or better is required for graduation.</b>		
Complete one or more of the following concentrations:		9-10
<b>Administrative Medical Assistant</b> (Concentration Code: HPMA)		
MDA 125*	Orientation to ICD-9 Coding (**)	3
MDA 126	Medical Billing and Insurance for Medical Assistants (**)	3
MDA 127	Administrative Procedures for Medical Assistants (**)	3
MDA 190A*	Medical Assistant Front Office Externship (**)	1
<b>Subtotal</b>		<b>10</b>
<b>Clinical Medical Assistant</b> (Concentration Codes: HPMC)		
HCA 103	Orientation to Pharmacology (**)	3
MDA 122	Medical Assistant Clinical Care (**)	2
MDA 123	Medical Assistant Clinical Procedures (**)	3
MDA 190B*	Medical Assistant Back Office Externship (**)	1
<b>Subtotal</b>		<b>9</b>
<b>Total credits as displayed</b>		<b>17-18</b>

\*\* Contact the department at 206-5100 for course offerings.

# 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 by taking classes in a combination of weekdays and evenings.

**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. In addition, students must have completed the program prerequisites (with grades posted) before they may begin the application process.

**To participate in the clinical portion of the program, students must:**

- Obtain an Arizona Department of Public Safety Fingerprint Clearance Card.
- Pass a urine toxicology screening exam from a certified laboratory.
- Provide proof of immunization status to Measles, Mumps, Rubella and Hepatitis B Virus.
- Provide proof of a negative TB skin test.
- Provide proof of health insurance coverage.
- Provide a declaration of health from a licensed care provider.

**Essential Functions**

To successfully participate in the PCC MLT program and become employable in a medical facility, the student should be able to perform essential functions expected of the working professional. Some examples of these essential functions are:

**Vision:** Should possess visual acuity, color, shade and depth perception to accurately perform and interpret laboratory tests. Must be able to read computer screens, specimen/reagent labels, and warning signs.

**Communication:** Should possess the ability to clearly and accurately communicate with patients and health care professionals, and to accurately follow verbal and written instructions.

**Physical Activity:** Should be able to stand and/or sit for prolonged periods and move freely and safely through the laboratory. Should be able to grasp, sit, squat, stoop, bend, reach, push, pull, and lift and carry up to 25 pounds.

**Manual Dexterity:** Should possess sufficient hand-eye coordination to efficiently, accurately and safely operate laboratory equipment, such as pipettes, inoculating loops, precision instrumentation, and perform phlebotomy procedures.

NOTE: Students in the Medical Laboratory Technician program may be exposed to potentially infectious blood, tissues, and body fluids.

**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 program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6763

Program/Major Codes: **AASMLT/MLT**

**Program Prerequisites**

Students must have completed the following prerequisites before they may begin the application process.

Reading assessment score of 90 or completion of REA 112.....	0-4
MAT 151*                      College Algebra (F-Sp-Su) .....	\$
CHM 151/151LB* or 151IN* and CHM 152/152LB* or 152IN* with a combined average grade of B or better within the last eight (8) years. NOTE: The average may be met with a grade of C in one course and a grade of A in the other. ....	\$

Completion of BIO 201IN\* and BIO 202IN\* with a combined average grade of B or better within the last eight years. Note: The average may be met with a grade of C in one course and a grade of A in the other. Complete the BIO 156IN prerequisite as needed.....§-4

BIO 205IN\* Microbiology (F-Sp-Su) with a grade of B or better.....§

**Subtotal .....0-8**

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

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....†

WRT 101 and SPE 120 fulfill this requirement.

Analysis and Critical Thinking Requirement.....†

MAT 151 and BIO 201 fulfill this requirement.

Humanities and Social Science Requirement .....3

BIO 250 fulfills 3 credits of the Leadership/Ethics category. Complete a course from the Humanities/Fine Arts or Social Science category.

Computer and Information Literacy Requirement .....1-3

Special Requirement

BIO 250 fulfills this requirement.

**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.**

BIO 250	Biomedical Ethics (F-Sp).....	3
MLT 101*	Phlebotomy for Medical Laboratory Technology (F-Sp).....	3
MLT 199*	Introductory Co-op: Phlebotomy Lab Assisting (F-Sp-Su).....	1
MLT 199WK*	Introductory Co-op Work: Phlebotomy Lab Assisting (F-Sp-Su).....	1.25
MLT 200	Urinalysis/Body Fluids (F).....	3
MLT 211	Hematology (Sp).....	5
MLT 221	Clinical Chemistry (Sp).....	4
MLT 231	Immunohematology/Immunology (F).....	5
MLT 251	Clinical Microbiology (F).....	5
MLT 260	Parasitology and Immunology/Serology (Sp).....	3
MLT 299*	Advanced Co-op: Medical Laboratory Technician (F-Sp).....	1
MLT 299WK*	Advanced Co-op Work: Medical Laboratory Technology (F-Sp).....	8
<b>Subtotal</b>		<b>42.25</b>

**Required Support Courses - A grade of C or better is required for graduation.**

BIO 201IN*	Human Anatomy and Physiology I (F-Sp-Su) SUN# BIO 2201.....	4
BIO 202IN*	Human Anatomy and Physiology II (F-Sp-Su) SUN# BIO 2202.....	4
BIO 205IN*	Microbiology (F-Sp-Su) SUN# BIO 2205.....	4
CHM 151/151LB or 151IN*	General Chemistry I (n/o).....	
	General Chemistry I (F-Sp-Su) SUN# CHM 1151.....	5
CHM 152/152LB or 152IN*	General Chemistry II (n/o).....	
	General Chemistry II (F-Sp-Su) SUN# CHM 1152.....	5
MAT 151*	College Algebra (F-Sp-Su) SUN# MAT 1151.....	4
SPE 120	Business and Professional Communication (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
<b>Subtotal</b>		<b>32</b>
<b>Total credits as displayed with program prerequisites</b>		<b>78.25-88.25</b>

Note: For the following courses, one (1) course may be repeated one (1) time. If a course needs to be repeated, re-entry into the remaining courses will be based on space availability: MLT 200, 211, 221, 231, 251, and 260.

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

§ Credits counted below.

# Nursing

Gain skills in patient care for employment as a registered nurse, licensed practical nurse, or patient care technician.

## 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. Complete this program by taking classes in a combination of weekdays, evenings and weekends.

This program has approval from the Arizona State Board of Nursing, and is accredited by the Accreditation Commission for Education in Nursing, Inc., 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326, [www.acenursing.org](http://www.acenursing.org).

### Before enrolling in this program you must meet certain requirements:

This degree program requires a special program application. Once all prerequisites are complete students can access the program application on the MyPima Academics tab in the Degrees and Programs section.

### 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.
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.
4. Present proof of immunization or immunity for MMR/Varicella/Hep-B/TDap.
5. Show proof of negative TB skin test or negative chest x-ray for TB.
6. Maintain health insurance and a CPR card at the Health Care Provider Level throughout the program.

Licensed Practical Nurses with work experience, including graduates from Pima's Center for Training and Development, 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 five credit transition course (NRS 188/188LS) and meet all acceptance requirements for admission into the third semester of the Associate Degree Nursing (ADN) Program.

### Program Transfer and Re-entry

Students currently enrolled in another accredited ADN Nursing Program wishing to transfer to Pima, or students wishing to re-enter the program, should contact the Nursing Department Office at 206-6661.

Pima Community College and Northern Arizona University have partnered to offer qualified students the opportunity to earn a Bachelor of Science in Nursing while pursuing their Associate's Degree in Nursing. For more information go to <http://www.pima.edu/programs-courses/credit-programs-degrees/health-professions/nursing/nursing-concurrent.html>

### What can I do with this degree?

**Career Options:** Take the National Council Licensure Examination (NCLEX-RN) to be eligible to work as a registered nurse.

**Academic Options:** Pursue a bachelor's degree in nursing at a university.

**Location:** West Campus

#### Department/Contact Information:

Department Chair: 206-6661

Dean: 206-6663

**Program Prerequisites**

Students must have completed the following prerequisites (with grades posted) before they may begin the application process.

REA 112* or Compass reading assessment score of 95 or higher.....	0-4
MAT 122* or Math assessment score into MAT 151* or higher.....	0-3
CHM 130/130LB/130IN* with at least a C or better or CHM 130 assessment score of 34 or higher within the last six years. ....	0-5
BIO 201IN* and BIO 202IN* with a combined average grade of B or better within the last six years. Note: The average may be met with a grade of C in one course and a grade of A in the other. Complete the BIO 156IN prerequisite as needed.....	8-12
PSY 101 Introduction to Psychology (F-Sp-Su).....	4
<b>Subtotal .....</b>	<b>12-28</b>

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

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 3 credits in the Social Science category. Complete a course from the Humanities/Fine Arts or Leadership/Ethics category which meets the cultural diversity (C) or the global awareness (G) requirement.	
Computer and Information Literacy Requirement .....	†
Core or support courses fulfill this requirement	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<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.**

NRS 104*/104LC*/104LS*	Nursing Process I (F-Sp).....	8
NRS 105*/105LC*/105LS*	Nursing Process II (F-Sp-Su) .....	9
NRS 201*/201LC*	Nursing Process III (F-Sp-Su) .....	9
NRS 202*/202CA*/202CB*	Nursing Process IV (F-Sp) .....	9
NRS 203*	Trends and Issues in Nursing (F-Sp) .....	1
<b>Subtotal .....</b>	<b>36</b>	

**Required Support Courses - A grade of C or better is required for graduation.**

BIO 205IN*	Microbiology (F-Sp-Su) SUN# BIO 2205 .....	4
ECE 107* or PSY 240*	Human Development and Relations (F-Sp-Su)..... Developmental Psychology (F-Sp-Su).....	3
BIO/FSN 127IN	Human Nutrition and Biology (F-Sp-Su) .....	4
HCA 102**	Drug Calculations (F-Sp) .....	1
HCA 155*	Introduction to Pharmacology (F-Sp) .....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
<b>Subtotal .....</b>	<b>21</b>	

**Total credits as displayed with program prerequisites .....72-88**

† Support or core course(s) fulfill this requirement.

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* HCA 102 requires a grade of A.

## Practical Nursing — Certificate for Direct Employment

Students who are accepted into, and complete the first three semesters of the Associate Degree Nursing program, including the courses listed below, are eligible for the Practical Nursing Certificate and to take the licensure exam to become a Licensed Practical Nurse. All the program admission and clinical requirements are the same for the Associate Degree in Nursing and the Practical Nursing Certificate. Complete this program by taking classes in a combination of weekdays, evenings and weekends.

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, located at the Desert Vista Campus, but will not earn college credit.

### What can I do with this certificate?

**Career Options:** Take the National Council Licensure Examination (NCLEX-PN) to be eligible to work as a licensed practical nurse.

**Academic Options:** Take courses to qualify as a registered nurse.

**Location:** West Campus

**Department/Contact Information:**

Department Chair: 206-6661

Dean: 206-6663

### Program Prerequisites

Students must have completed the following prerequisites (with grades posted) before they may begin the application process.

REA 112* or Compass reading assessment score of 95 or higher.....	0-4
MAT 122* or Math assessment score into MAT 151* or higher.....	0-3
CHM 130/130LB/130IN* with at least a C or better or CHM 130 assessment score of 34 or higher within the last six years. ....	0-5
BIO 201IN* and BIO 202IN* with a combined average grade of B or better within the last six years. ....	8-12
Note: The average may be met with a grade of C in one course and a grade of A in the other. Complete the BIO 156IN prerequisite as needed.	
PSY 101 Introduction to Psychology (F-Sp-Su).....	4
<b>Subtotal .....</b>	<b>12-28</b>

### General Education Requirements A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 fulfills this requirement.	
Analysis and Critical Thinking Requirement.....	†
Program prerequisites fulfill this requirement	
<b>Subtotal .....</b>	<b>0¥</b>

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-Su).....	9
NRS 201*/201LC*	Nursing Process III (F-Sp-Su).....	9
<b>Subtotal .....</b>		<b>26</b>

### Required Support Courses

BIO/FSN 127IN	Human Nutrition and Biology (F-Sp-Su).....	4
BIO 205IN*	Microbiology (F-Sp-Su) SUN# BIO 2205.....	4
ECE 107* or PSY 240*	Human Development and Relations (F-Sp-Su) Developmental Psychology (F-Sp-Su).....	3
HCA 102	Drug Calculations (F-Sp).....	1
HCA 155*	Introduction to Pharmacology (F-Sp).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102.....	3
<b>Subtotal .....</b>		<b>21</b>
<b>Total credits as displayed.....</b>		<b>59-75</b>

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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



## 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. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus. Complete this program by taking classes exclusively on weekdays, exclusively evenings or in a combination of weekdays and evenings.

#### 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 Administrative Coordinator.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTADMINAIDE.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7179

Program/Major Codes: **CRTADMINAIDE/OAA**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
CSA 110*	Spreadsheets: Microsoft Excel .....	3
CSA 120*	Word Processing: Word (F-Sp) .....	3
OAP 111A**	Keyboarding for Office Technology: Basic (F-Sp-Su).....	1
OAP 151*	Business English (F-Sp) .....	3
OAP 171*	Office Procedures (n/o).....	3
<b>Total credits as displayed.....</b>		<b>16</b>

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

\*\* This course will be waived with a score of 30 or higher on the OAP 111A Assessment exam.

### Administrative Assistant — Certificate for Direct Employment

Learn preparation skills to manage, coordinate and organize an office environment to provide administrative support to an organization. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus. Complete this program by taking classes in a combination of weekdays and evenings/weekends.

#### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTADMINSPEC.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7174 Lab

Program/Major Codes: **CRTADMINSPEC/OAS**

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
OAP 151 fulfills this requirement	
Analysis and Critical Thinking Requirement.....	0-3
BUS 151 (only if taken after spring 2008) fulfills this requirement	
<b>Subtotal .....</b>	<b>0-3‡</b>

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
CSA 110*	Spreadsheets: Microsoft Excel (F-Sp-Su) .....	3
CSA 120	Word Processing: Word (n/o).....	3
OAP 111A**	Keyboarding for Office Technology: Basic.....	1
OAP 111B***	Keyboarding for Office Technology: Skill Building .....	1
OAP 151*	Business English (F-Sp) .....	3
OAP 171*	Office Procedures (n/o)	
or BUS 220	Legal Environment of Business (F-Sp-Su)	
or CSA 170	Access Database (n/o).....	3
OAP 199	Co-op: Office and Administrative Professions (F-Sp).....	1
OAP 199WK	Co-op Work: Office and Administrative Professions (F-Sp).....	1
OAP 251*	Business Communication (F-Sp) .....	3
<b>Subtotal .....</b>		<b>22</b>

**Required Support Courses**

ACC 100	Practical Accounting Procedures (F-Sp-Su).....	3
BUS 151*	Mathematics of Business (F-Sp-Su) .....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
MKT 100	Customer Service Skills (F) .....	3
<b>Subtotal .....</b>		<b>12</b>
<b>Total credits as displayed.....</b>		<b>34-37</b>

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

‡ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* This course will be waived with a score of 35 or higher on the OAP 111A Assessment exam.

\*\*\* This course will be waived with a score of 45 or higher on the OAP 111A Assessment exam.

**Executive Assistant — Associate of Applied Science Degree for Direct Employment**

Learn to manage, coordinate and organize an office environment to provide administrative management to an organization. Complete this program by taking classes in a combination of weekdays and evenings.

**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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7174 Lab

Program/Major Codes: **AASOAG/OAG**

**Prerequisite:**

OAP 111A**	Keyboarding for Office Technology: Basic.....	1
OAP 111B***	Keyboarding for Office Technology: Skill Building.....	1
<b>Subtotal</b>		<b>0-2</b>

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
OAP 151 and 251 fulfill this requirement	
Analysis and Critical Thinking Requirement.....	0-3
BUS 151 (only if taken after spring 2008) and STU 200 fulfill this requirement	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	†
Required core courses fulfill this requirement.	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal</b> .....	<b>6-9‡</b>

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

CSA 101*	Computer Fundamentals (F-Sp-Su) .....	3
CSA 110*	Spreadsheets: Microsoft Excel (F-Sp-Su) .....	3
CSA 120	Word Processing: Word (n/o).....	3
CSA 170	Access Database (n/o).....	3
OAP 151*	Business English (F-Sp) .....	3
OAP 171*	Office Procedures ((n/o))	
or BUS 220	Legal Environment of Business (F-Sp-Su) .....	3
OAP 199	Co-op: Office and Administrative Professions (F-Sp).....	1
OAP 199WK	Co-op Work: Office and Administrative Professions (F-Sp).....	1
OAP 251*	Business Communication (F-Sp) .....	3
<b>Subtotal</b> .....		<b>23</b>

**Required Support Courses**

ACC 100	Practical Accounting Procedures (F-Sp-Su).....	3
ACC 215*	Quickbooks Computer Accounting (F-Sp-Su).....	3
BUS 100	Introduction to Business (F-Sp-Su).....	3
BUS 151*	Mathematics of Business (F-Sp-Su) .....	3
MGT 110	Human Relations in Business and Industry (F-Sp).....	3
MGT 122*	Supervision (F-Sp) .....	3
MGT 124	Small Business Management (F-Sp-Su) .....	3
MGT 270*	Computer Applications for Managers (F-Sp) .....	3
MKT 100	Customer Service Skills (F) .....	3
STU 200*	Becoming a Critical Thinker (F-Sp) .....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
<b>Subtotal</b> .....		<b>33</b>
<b>Total credits as displayed</b> .....		<b>63-68</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* This course will be waived with a score of 35 or higher on the OAP 111A Assessment exam.

\*\*\* This course will be waived with a score of 45 or higher on the OAP 111A Assessment exam.

# 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 investigate legal cases, draft legal documents and perform legal research under the supervision of an attorney. Program includes a paralegal internship. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

**Before enrolling in this program,** 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:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7352

Program/Major Codes: **AASLEGALASST/LAS**

### General Education Requirements - A grade of C or better is required for graduation.

Communication Requirement.....	†
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....	†
Mathematics and Science support courses fulfill this requirement.	
Humanities and Social Science Requirement .....	†
Humanities and Social Science support courses fulfill this requirement.	
Computer and Information Literacy Requirement .....	†
CSA 101 fulfills this requirement.	
<b>Subtotal .....</b>	<b>0¥</b>

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
<b>Subtotal .....</b>		<b>24</b>

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 a 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.)	
<b>Subtotal</b>	.....	<b>15</b>

**Required Support Courses**

ACC 100	Practical Accounting Procedures (F-Sp-Su)	
or ACC 101	Financial Accounting (F-Sp-Su) SUN# ACC 2201.....	3
CSA 101*	Computer Fundamentals (F-Sp-Su).....	3
POS 201	American National Government and Politics (F-Sp-Su) SUN# POS 1110	
or POS 210	National and State Constitutions (F-Sp-Su).....	3
SPE 110	Public Speaking (F-Sp-Su).....	3
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102.....	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 101/101LB or 101IN, 102/102LB or 102IN, 105IN;
- BIO 100IN or higher (except 198, 297, 298);
- CHM 121/121LB or 121IN or higher (except 198, 296, 297);
- GEO 101, 102;
- GLG 101IN, 102IN;
- PHY 121/121LB\* or 121IN\*, 122/122LB\* or 122IN\*, 210/210LB\* or 210IN, 216/216LB or 216IN, 221/221LB

Critical Thinking Category

- PHI 120 SUN# PHI 1103

**Humanities and Social Science Requirement**.....3  
 Select from the following course lists only.

Humanities and Fine Arts Category

- ANT 112, 148, 205, 206,
- ART 130, 131,
- HIS 101, 102, 113, 114, 122, 124, 141, 142, 148, 160, 161, 170,
- HUM 251, 252, 253, 260,
- LIT 261/266, 267,
- REL 234

Any AGECE requirement from the "Other Requirements Options:" (C) Second Language list that has a "G" designation.

Social and Behavioral Science Category

POS 201 or 210 fulfills 3 credits of the 6 credit Humanities and Social Science total requirement.

<b>Subtotal</b>	.....	<b>27</b>
<b>Total credits as displayed</b>	.....	<b>66</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Paralegal - Post-Degree Certificate for Direct Employment

Learn to investigate legal cases, draft legal documents, and perform legal research under the supervision of an attorney. This program includes a paralegal internship. Complete this program by taking classes exclusively in the evenings or in a combination of weekdays and evenings.

**Before enrolling in this program,** you must have earned a bachelor’s degree or an Associate of Arts or Science from an accredited post-secondary institution and demonstrate a score of 95 or higher on the Compass reading assessment.

### What can I do with this certificate?

**Career Options:** Seek a position as a 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.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/program-courses/gainful-employment/CRDLEGALASST.pdf>

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7352

Program/Major Codes: **CRDLEGALASST/LAP**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
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
<b>Subtotal</b>		<b>24</b>
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 a 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 is required.)		
<b>Subtotal</b>		<b>15</b>
<b>Required Support Course</b>		
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101	
or WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102	3
<b>Subtotal</b>		<b>3</b>
<b>Total credits as displayed</b>		<b>42</b>

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

# 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 by taking classes in a combination of weekdays, evenings and online.

**Before enrolling in this program**, you must meet the following requirements:

In addition to the program prerequisites listed below, this certificate program requires a Pharmacy Technology application which is available online in two formats. Students may submit a program application when all prerequisites are complete.

### 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.
- Location:** East Campus
- Department/Contact Information:**  
 Dean: 206-7694  
 Lead Faculty: 206-7850

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

REA 091 or Reading assessment score at REA 112 or higher.....	0-4
MAT 092 with a grade of C or better of Math assessment score at MAT 122 or higher.....	0-3
Completion of the following courses with a grade of C or better:	
PHT 170*, PHT 171IN*, PHT 172*, PHT 174IN* .....	§
<b>Subtotal .....</b>	<b>0-7</b>

### General Education Requirements - A grade of C or better is required for graduation.

*Course lists for each General Education category listed below can be found starting on page 55.*

Communication Requirement.....	3
Analysis and Critical Thinking Requirement.....	3
<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-Su).....	2
PHT 171IN*	Pharmaceutical Calculations (F-Sp-Su).....	4
PHT 172*	Drug Therapy I (F-Sp-Su).....	4
PHT 174IN*	Pharmacy Operations (F-Sp).....	3
PHT 178IN*	Computer Applications for Pharmacy (F-Sp).....	3
PHT 180IN*	Sterile Products (F-Sp).....	4
PHT 181*	Interprofessional Relations in Pharmacy (F-Sp-Su).....	3
PHT 182*	Drug Therapy II (F-Sp-Su).....	4
PHT 187*	Pharmacy Law and Ethics (F-Sp-Su).....	3
PHT 190LB*	Pharmacy Technician Internship (F-Sp-Su).....	4
PHT 197*	Clinical Seminar (F-Sp-Su).....	2
<b>Subtotal .....</b>		<b>36</b>
<b>Total credits as displayed with program prerequisites .....</b>		<b>42-49</b>

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

## 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 by taking classes in a combination of weekdays, evenings and online.

**Before enrolling in this program,** you must meet the following requirements:

In addition to the program prerequisites listed below, this certificate program requires a Pharmacy Technology application which is available online in two formats. Students may submit a program application when all prerequisites are complete.

### What can I do with this degree?

**Career Options:** Work in hospitals, nursing care facilities and drug stores, and with pharmaceutical manufacturers, wholesale pharmaceutical companies and health maintenance organizations.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** East Campus

**Department/Contact Information:**

Dean: 206-7694

Lead Faculty: 206-7850

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

REA 091 or Reading assessment score at REA 112 or higher.....	0-4
MAT 092 with a grade of C or better or Math assessment score at MAT 122 or higher .....	0-3
Completion of the following courses with a grade of C or better:	
PHT 170*, PHT 171IN*, PHT 172*, PHT 174IN* .....	\$
<b>Subtotal .....</b>	<b>0-7</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	0-3
BIO 100IN (or 181IN*) and CHM 130IN* (or 151IN*) fulfill the credit requirements for this category. The Math Competency must also be met, and may be met by the math program prerequisite.	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement. ....	†
Core courses fulfill this requirement	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>12-15‡</b>

Course Number	Course Title	Credit Hours
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### Required Core Courses - A grade of C or better is required for graduation.

PHT 170	Introduction to Pharmacy Technology (F-Sp-Su).....	2
PHT 171IN*	Pharmaceutical Calculations (F-Sp-Su) .....	4
PHT 172*	Drug Therapy I (F-Sp-Su) .....	4
PHT 174IN*	Pharmacy Operations (F-Sp).....	3
PHT 178IN*	Computer Applications for Pharmacy (F-Sp).....	3
PHT 180IN*	Sterile Products (F-Sp).....	4
PHT 181*	Interprofessional Relations in Pharmacy (F-Sp-Su) .....	3
PHT 182*	Drug Therapy II (F-Sp-Su).....	4
PHT 187*	Pharmacy Law and Ethics (F-Sp-Su).....	3
PHT 190LB*	Pharmacy Technician Internship (F-Sp-Su).....	4
PHT 197*	Clinical Seminar (F-Sp-Su) .....	2
<b>Subtotal .....</b>		<b>36</b>



**Required Support Courses**

BIO 100IN	Biology Concepts (F-Sp-Su)	
or BIO 181IN*	General Biology (Majors) I (F-Sp) SUN# BIO 1181 .....	4
CHM 130/130LB/ 130IN*	Fundamental Chemistry (F-Sp-Su) SUN# CHM 1130	
or CHM 151/ 151LB/151IN*	General Chemistry I (F-Sp-Su) SUN# CHM 1151 .....	5
CHM 140/140LB/ 140IN*	Fundamental Organic and Biochemistry (F-Sp-Su) SUN# CHM 2230	
or CHM 152/ 152LB/152IN*	General Chemistry II (F-Sp-Su) SUN# CHM 1152 .....	5
<b>Subtotal .....</b>		<b>14</b>
<b>Total credits as displayed with program prerequisites .....</b>		<b>62-72</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

§ Credits counted below.

# Phlebotomy

## Phlebotomy — Certificate for Direct Employment

Learn skills to prepare for employment in the area of phlebotomy and prepare to take exams for national certification. This certificate is offered at the Center for Training and Development, Desert Vista Campus and earns college credit. Complete this program by taking classes exclusively in the evenings.

**Before enrolling in this program**, students must take the Compass assessment and must achieve the following scores:

- Reading: 60
- Math: 20
- Writing: 40

### What can I do with this certificate?

**Career Options:** Once eligible, students are encouraged to take one of the national certification exams in phlebotomy. Work as a phlebotomist in physician’s offices, medical centers, clinics, and medical laboratories.

**Academic Options:** Take courses in medical laboratory technology, medical assisting, registered nursing or practical nursing.

**Location:** Desert Vista Campus

**Department/Contact Information:**

Dean: 206-5142

Lead Faculty: 206-5072

Program/Major Codes: **CRTPHB/PHB**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
PHB 160	Foundations of Phlebotomy (F-Sp-Su).....	3
PHB 162	Safety Standards in Phlebotomy (F-Sp-Su) .....	3
PHB 164	Professional Practices in Phlebotomy (F-Sp-Su) .....	3
PHB 166LB	Phlebotomy Laboratory Practice (F-Sp-Su).....	2
PHB 190LC	Clinical Internship in Phlebotomy (F-Sp-Su) .....	1-3
<b>Total Credits as Displayed .....</b>		<b>12-14</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 or an advisor to plan their course of study using the appropriate transfer guide.

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## *What can I do with my studies in physics?*

**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

# 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 Degree for Transfer may be recognized by some employers for entry level positions. Complete this program by taking classes exclusively on weekdays or in a combination of weekdays and evenings/weekends.

Program/Major Codes: **AOAPOLITLSCI/POS**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	6
Biological and Physical Sciences.....	8
Mathematics .....	3
Social and Behavioral Sciences .....	3
POS 100 fulfills 3 credits of this requirement. Complete a non-POS course from this category.	
Other Requirements..... †	
POS 201 and a language course fulfill this requirement.	
Special Requirements	
POS 201 fulfills the C requirement. POS 202 fulfills the G requirement. The I requirement must be fulfilled by a course in the above categories.	
<b>Subtotal .....</b>	<b>26</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
POS 100	Introduction to Politics (F-Sp) .....	3
POS 201	American National Government and Politics (F-Sp-Su) SUN# POS 1110 .....	3
POS 202	Introduction to International Relations (F-Sp-Su) SUN# POS 1120 .....	3
POS 203	Introduction to Political Ideas (F).....	3
POS 204	Introduction to Comparative Politics (Sp) SUN# POS 2204.....	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. (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 may be required to meet the minimum associate degree requirement of 60 credit hours.	
Electives .....	3-19
Complete 3-19 transferable credits so the total credits for the degree are 60-64.	
<b>Subtotal .....</b>	<b>19-23</b>
<b>Total credits as displayed.....</b>	<b>60-64</b>

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

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

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

## Pre-Agriculture

Students interested in the area of Agriculture should follow the **Associate of Arts Degree for Transfer in Liberal Arts** 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 **Liberal Arts Associate of Arts Degree for Transfer in Liberal Arts** 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 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, 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. Complete this program by taking classes exclusively on weekdays, exclusively evenings, or in a combination of weekdays and evenings.

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.

Program/Major/Concentration Codes: **AOALIBRALART/ALA/ALAP**

Course Number	Course Title	Credit Hours
<b>Required Core Courses – A grade of C or better is required for graduation.</b>		
PSY 101 or PSY 100A and 100B	Introduction to Psychology (F-Sp-Su) SUN# PSY 1101 Psychology I and Psychology II.....	4-6
PSY 230*	Psychological Measurements and Statistics (F-Sp-Su).....	3
PSY 289*	Research Methods (F-Sp-Su) SUN# PSY 2290 .....	4
<b>Subtotal</b> .....		<b>11-13</b>

Select one additional course from the list below.

PSY 132*	Psychology and Culture (F-Sp-Su).....	3
PSY 214*	Abnormal Psychology (F-Sp-Su) .....	3
PSY 215*	Human Sexuality (F-Sp-Su) .....	3
PSY 216*	Psychology of Gender (F-Sp-Su).....	3
PSY 218*	Health Psychology (F-Sp-Su) .....	3
PSY 220*	Psychology of Death & Loss (F-Su) .....	3
PSY 240*	Developmental Psychology (F-Sp-Su).....	3
PSY 250*	Introduction to Social Psychology (F-Sp).....	3
PSY 254*	Psychology of Love and Compassion (F-Sp-Su) .....	3
PSY 265*	Normal Personality (F-Sp).....	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.

## 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 Bachelor of Applied Science Degree in Fire Service Management. Both of these 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, 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, trust and benefit. We work together to make effective use of the talent, facilities and resources possessed by each partner.

See the following programs in this main program section of the catalog: Administration of Justice, Fire Science, and the following programs in the Workforce Response Programs at the back of this catalog: Corrections, Law Enforcement, and Juvenile Corrections. Also see courses in Community Development (CDE).

### Public Safety and Emergency Services Institute

Community Campus  
401 North Bonita Ave.  
Tucson, AZ 85709-5000  
(520) 206-6350

# 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, equipment operation, radiographic procedures, patient care, and radiation safety and protection. Complete this program by taking classes exclusively on weekdays, but clinicals require evenings and some weekends.

**Before enrolling in this program, you must complete certain requirements:**

This degree program requires a special program application. Once all prerequisites are complete students can access the program application on the MyPima Academics tab, in the Degrees and Program section.

**To participate in the program, the students must:**

- 1 Obtain an Arizona DPS Fingerprint Clearance Card.
- 2 Pass a urine toxicology screening exam.
- 3 Present proof of immunization or immunity for MMR/Varicella//TDaP/ Hepatitis-B. Please be aware that the **hepatitis vaccination** is a series of three shots with 1-2 months between the first and second shot and four months between the second and third shot. All students must get the Hepatitis –B vaccinations and/or titers **prior to entering the program**.
- 4 Show proof of negative TB skin test or negative chest x-ray for TB, and annual flu shot.
- 5 Maintain health insurance and a CPR card at the Health Care Provider Level throughout the program.
- 6 Pass a Health Physical. Students are expected to have the essential functions necessary to be able to assess and gather information regarding the patient, i.e. color changes in the skin, feeling pulses, communicate effectively with the patient and health care team, and the ability to synthesize the data obtained to critically think and make emergency decisions. During lab and clinical training, the HRP students must be able to accomplish tasks that require the student to stoop, bend, squat, push/pull, grasp/handle, lift 50 pounds, hear, see, touch, smell, stand, and walk during the entire 8 hour clinical day. Students will be required to move medical equipment and assist lifting patients without mechanical devices.
- 7 The clinical experience 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 application.
- 8 Provide own transportation to various clinical facilities throughout the Tucson regional area.
- 9 Attend RAD orientation session.

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

- Career Options:** Eligibility to apply for the medical radiography exam by the American Registry of Radiologic Technologists and qualify to work in hospitals, clinics and doctors’ offices.
- Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).
- Location:** West Campus
- Department/Contact Information:**  
 Dean: 206-6663  
 Lead Faculty: 206-3105

### Program Prerequisites

Students must have completed the following prerequisites (with grades posted) before they may begin the application process. International students must score higher than 450 on the institutional TOEFL (Test of English as a Second Language.)

REA 112* or Reading assessment score of 95 or higher. ....	0-4
MAT 122* or higher with a grade of C or better or Math assessment score at MAT 151 or higher .....	0-3
BIO 201IN* and BIO 2021N* with a combined average of B or better within the last sixyears. Note: Minimal course grade requirement can be met with a grade of C in one course and a grade of A in the other. Complete BIO 156IN prerequisite as needed.....	8-12
HIT 105** Medical Terminology (Sp) .....	4
<b>Subtotal</b> .....	<b>12-23</b>

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

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 4 credits of this requirement. Complete a course from the Humanities & Fine Arts or the Leadership & Ethics category which meets the cultural diversity (C) or global awareness (G) requirement.	
Computer and Information Literacy Requirement .....	1-3
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>4-6‡</b>

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

RAD 170/170LB*	Medical Imaging Fundamentals (Su).....	3
RAD 171/171LB*	Radiographic Positioning I (F).....	4.5
RAD 172/172LB*	Medical Imaging Technology I (F).....	3.5
RAD 173LC*	Clinical Education I (F).....	6
RAD 174/174LB*	Radiographic Positioning II (Sp).....	4.5
RAD 175/175LB*	Medical Imaging Technology II (Sp).....	3.5
RAD 176LC*	Clinical Education II (Sp).....	6
RAD 177LC*	Clinical Education III (Su).....	6
RAD 181/181LB*	Radiographic Positioning III (F).....	4
RAD 182/182LB*	Medical Imaging Technology III (F).....	4
RAD 183LC*	Clinical Education IV (F).....	4
RAD 184/184LB*	Radiographic Positioning IV (Sp).....	3.5
RAD 185*	Clinical Seminar (Sp).....	1.5
RAD 186LC*	Clinical Education V (Sp).....	6
<b>Subtotal .....</b>	<b>60</b>	

**Required Support Courses - A grade of C or better is required for graduation.**

PSY 101	Introduction to Psychology (F-Sp-Su) SUN# PSY 1101 .....	4
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
<b>Subtotal .....</b>	<b>10</b>	
<b>Total credits as displayed with program prerequisites .....</b>	<b>86-96</b>	

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

\*\* HIT 162 is no longer offered, but will meet the prerequisite for students that have already taken the course.

# Respiratory Care

## Respiratory Care — Associate of Applied Science Degree for Direct Employment

Develop skills through classroom and clinical experience to become a respiratory therapist. Complete this program by taking classes exclusively on weekdays, but clinicals require evenings and some weekends. Pima Community College's Respiratory Care program is accredited by the Commission on Accreditation for Respiratory Care ([www.coarc.com](http://www.coarc.com)).

Commission on Accreditation for Respiratory Care  
1248 Harwood Road, Bedford, Texas 76021-4244  
(817) 283-2835 (telephone), (817) 354-8519 (fax)

**Before enrolling in this program,** you must complete certain requirements. This program requires a special Respiratory Care – AAS program application. Once all prerequisites are complete students can access the program application on the MyPima Academics tab in the Degrees and Programs section.

### 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.
3. Students are expected to have the essential functions necessary to be able to assess and gather information regarding the patient, i.e., color changes in the skin, hearing heart and lung sounds through a stethoscope, feeling pulses, communicate effectively with the patient and health care team, and the ability to synthesize the data obtained to critically think and make emergency decisions. During lab and clinical training, the HRP students must be able to accomplish tasks that require the student to stoop, bend, squat, push/pull, grasp/handle, lift 50 pounds, hear, see, touch, smell, stand, and walk during the entire 8 hour clinical day. Students will be required to move medical equipment, perform chest compressions, and assist lifting patients without mechanical devices.
4. The respiratory care experience 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.
5. Present proof of immunization or immunity for MMR/Varicella/Hep-B/TDaP.
6. Show proof of negative TB skin test or negative chest x-ray for TB..
7. Maintain health insurance and a CPR card at the Health Care Provider Level throughout the program.

Note: The Commission on Accreditation for Respiratory Care requires students to successfully complete an Advanced Cardiac Life Support course prior to graduation. The Respiratory Care program requires successful completion of the Advanced Cardiac Life Support course prior to the third semester of the program.

### Important Information on Licensure

Students should be aware that federal and state law requires documentation that the applicant for Respiratory Care Practitioner licensure is a U.S. citizen, national, or a person described in specific categories, to be eligible for licensure in Arizona.

### 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 program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

#### Department/Contact Information:

Dean: 206-6663  
Lead Faculty: 206-3107

**Program Prerequisites**

Students must have completed the following prerequisites (with grades posted) before they may begin the application process.

International students must score higher than 450 on the institutional TOEFL (Test of English as a Second Language)

REA 112 or Compass reading assessment score of 95 or higher.....	0-4
MAT 122 with a grade of C or better or Math assessment score at MAT 151 or higher .....	0-3
CHM 130/130LB/130IN* with a grade of C or better, or Chemistry assessment score of 34 or higher .....	0-5
Within the last six years with a grade of C or better: BIO 160IN, or all of the following:	
BIO 156IN and 201IN* and 202IN* .....	4-12
BIO 205IN* Microbiology .....	4
PSY 101 Introduction to Psychology .....	4
WRT 101 Writing I With a C or better.....	3
WRT 102 Writing II With a C or better.....	3
<b>Subtotal .....</b>	<b>18-38</b>

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and WRT 102 program prerequisites fulfill this requirement	
Analysis and Critical Thinking Requirement.....	†
MAT 122 and BIO 205IN program prerequisites fulfill this requirement	
Humanities and Social Science Requirement .....	3
PSY 101 program prerequisite fulfills 4 credits of this requirement. Complete a course from the Humanities or Leadership & Ethics category which meets the cultural diversity (C) or global awareness (G) requirement.	
Computer and Information Literacy Requirement .....	†
Core courses fulfill this requirement	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<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.**

HCA 152	Advanced Cardiac Life Support (Su) .....	2
RTH 110*	Introduction to Respiratory Care (F) .....	4
RTH 112*	Respiratory Physiology (F).....	4
RTH 121/121LB*	Basic Therapeutics in Respiratory Care (F) .....	5
RTH 123/123LB*	Basic Assessment and Monitoring (Sp).....	4
RTH 124*	Pharmacology for Respiratory Care (Sp) .....	3
RTH 125LC*	Clinical Procedures I (F) .....	1
RTH 135LC*	Clinical Procedures II (Sp).....	3
RTH 162*	Principles of Mechanical Ventilation (Sp) .....	3
RTH 241/241LB*	Critical Care Therapeutics (F).....	5
RTH 243/243LB*	Advanced Assessment and Monitoring (F) .....	5
RTH 245LC*	Clinical Procedures III (F) .....	4
RTH 246*	Cardiorespiratory Disorders I (Sp).....	3
RTH 251/251LB*	Advanced and Specialty Therapeutics (Sp).....	5
RTH 255LC*	Clinical Procedures IV (Sp) .....	4
RTH 256*	Cardiorespiratory Disorders II (Sp).....	3
RTH 257LB*	Clinical Applications and Professional Development (Sp).....	1
<b>Subtotal .....</b>	<b>59</b>	
<b>Total credits as displayed with program prerequisites .....</b>	<b>80-100</b>	

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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



# 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 by taking classes exclusively on weekdays or in a combination of weekdays and evenings.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6746

Program/Major Codes: **AASSOCIALSRV/SSE**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	3
SSE 110 fulfills 3 credits of the Social Science category. Complete a course from the Humanities & Fine Arts or Leadership & Ethics category.	
Computer and Information Literacy Requirement .....	1-3
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>16-18‡</b>

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-Su) .....	3
SSE 111	Group Work (F-Sp) .....	3
SSE 210*	Community Organization and Development (F-Sp).....	3
SSE 211*	Group Technique Applications (F-Sp) .....	3
SSE 281*	Social Service Delivery Systems (F-Sp) (was SSE 212) .....	3
SSE 285*	Foundations of Social Work Practice (F-Sp) (was SSE 202).....	3
SSE 292*	Social Services Field Experience (F-Sp) .....	4
<b>Subtotal .....</b>		<b>22</b>

### Required Support Courses

SSE Electives .....	3
Electives - Complete 17-23 credits so the total credits for the degree are 60-64 .....	17-23
Please see an advisor to select appropriate course work.	
<b>Subtotal .....</b>	<b>20-26</b>
<b>Total credits as displayed.....</b>	<b>60-64</b>

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## Social Services — Associate of Arts Degree for Transfer

Prepare to transfer to a university to complete a degree in social work. Complete this program by taking classes exclusively on weekdays, exclusively evenings, or in a combination of weekdays and evenings.

### What can I do with this degree?

**Career Options:** Entry-level employment in social service positions.

**Academic Options:** Transfer to ASU majoring in social work; may also transfer to other BSW programs.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6746

Program/Major Codes: **AOASOCIALSRV/SST**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	3
PHI 101 or 130 fulfills 3 credits of this requirement. Complete a course from the Art List.	
Biological and Physical Sciences.....	4
BIO 156IN or 160IN fulfill 4 credits of this requirement. Complete another course from this category.	
Mathematics .....	†
MAT 142 or 151 fulfills this requirement	
Social and Behavioral Sciences .....	†
SSE 110 and ECN 202 fulfill this requirement.	
Other Requirements.....	3
PSY 101 or SOC 101 fulfill 3 credits of this requirement. Complete another course from this category.	
Special Requirements	
The I, C, and G requirements should be fulfilled by selecting appropriate courses in the above categories	
<b>Subtotal .....</b>	<b>16†</b>

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-Su) .....	3
SSE 111	Group Work (F-Sp) .....	3
SSE 210*	Community Organization and Development (F-Sp).....	3
SSE 211*	Group Technique Applications (F-Sp) .....	3
SSE 281*	Social Service Delivery Systems (F-Sp) (was SSE 212) .....	3
SSE 285*	Foundations of Social Work Practice (F-Sp) (was SSE 202).....	3
SSE Transferable Electives .....		3
<b>Subtotal .....</b>		<b>21</b>

### Required Support Courses

BIO 156IN*	Human Biology for Allied Health (F-Sp-Su)	
or BIO 160IN	Introduction to Human Anatomy and Physiology (F-Sp-Su) .....	4
ECN 202*	Macroeconomic Principles (F-Sp-Su) SUN# ECN 2201 .....	3
MAT 142 *	Topics in College Mathematics (F-Sp-Su)	
or MAT 151*	College Algebra (F-Sp-Su) SUN# MAT 1151	
or any MAT course numbered 151 or above .....		3-4
PHI 101	Introduction to Philosophy (F-Sp-Su) SUN# PHI 1101	
or PHI 130	Introductory Studies in Ethics and Social Philosophy (F-Sp-Su) SUN# PHI 1105 .....	3
PSY 101	Introduction to Psychology (F-Sp-Su) SUN# PSY 1101	
or SOC 101	Introduction to Sociology (F-Sp-Su) SUN# SOC 1101 .....	3-4
Transferable Electives .....		7-12

See your advisor to select 7 to 12 credits of transferable electives so the program total is 60 to 64 credits.

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 more than 64 credits are required to reach fourth-semester proficiency while at PCC, the requirement will be fulfilled but no more than 64 credits will be applied toward the bachelor's degree.

<b>Subtotal</b> .....	<b>23-27</b>
<b>Total credits as displayed</b> .....	<b>60-64</b>

- † Support or core 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.

## 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 in a combination of weekdays and evenings.

### 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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996  
Lead Faculty: 206-6746

Program/Major Codes: **AASSUBSTABUS/SSS**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	3
SSE 110 fulfills 3 credits in the Social Science category. Complete a course from the Humanities & Fine Arts or Leadership & Ethics category.	
Computer and Information Literacy Requirement .....	1-3
Special Requirement .....	1-3
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal</b> .....	<b>16-18¥</b>

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-Su) .....	3
SSE 111	Group Work (F-Sp) .....	3
SSE 121	Study of Substance Abuse (F-Sp) .....	3
SSE 123	Substance Abuse Prevention (Sp) .....	3
SSE 210*	Community Organization and Development (F-Sp).....	3
SSE 211*	Group Technique Applications (F-Sp) .....	3
SSE 220*	Treatment of the Substance Abuser (Sp) .....	3
SSE 222*	Political, Legal and Ethical Aspects of Drug Use (F) .....	3
SSE 281*	Social Service Delivery Systems (F-Sp) (was SSE 212) .....	3
SSE 285*	Foundations of Social Work Practice (F-Sp) (was SSE 202).....	3
SSE 292*	Social Services Field Experience (F-Sp) .....	4
<b>Subtotal</b> .....		<b>34</b>

**Required Support Courses**

Electives .....	10 - 12
Please see an advisor to select appropriate course work.	
<b>Subtotal .....</b>	<b>10-12</b>
<b>Total credits as displayed.....</b>	<b>60-64</b>

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

**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 by taking classes exclusively on weekdays or in a combination of weekdays and evenings.

**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.

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6746

Program/Major Codes: **AASYOUTHSERV/SSY**

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	3
SSE 110 fulfills 3 credits in the Social Science category. Complete a course from the Humanities & Fine Arts or the Leadership & Ethics category.	
Computer and Information Literacy Requirement .....	1-3
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>16-18¥</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

**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-Su) .....	3
SSE 110	Introduction to Social Welfare (F-Sp-Su) .....	3
SSE 111	Group Work (F-Sp) .....	3
SSE 146	Child Abuse Intervention and Protection (F).....	3
SSE 160	Introduction to Youth Services (F) .....	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 285*	Foundations of Social Work Practice (F-Sp) (was SSE 202).....	3
SSE 290*	Youth Services Field Experience (F-Sp).....	4
<b>Subtotal .....</b>	<b>34</b>	

**Required Support Courses**

Electives .....	10-12
Please see an advisor to select appropriate course work.	
<b>Subtotal .....</b>	<b>10-12</b>
<b>Total credits as displayed.....</b>	<b>60-64</b>

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.

**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 by taking classes exclusively on weekdays, exclusively on evenings, or in a combination of weekdays and evenings.

**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.
- More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTSOCIALSRV.pdf>
- Location:** West Campus
- Department/Contact Information:**  
 Dean: 206-6996  
 Lead Faculty: 206-6746
- Program/Major Codes:** **CRTSOCIALSRV/SSC**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
SSE 110	Introduction to Social Welfare (F-Sp-Su) .....	3
SSE 111	Group Work (F-Sp) .....	3
SSE 210*	Community Organization and Development (F-Sp).....	3
SSE 211*	Group Technique Applications (F-Sp) .....	3
SSE 281*	Social Service Delivery Systems (F-Sp) (was SSE 212) .....	3
SSE 285*	Foundations of Social Work Practice (F-Sp) (was SSE 202).....	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 Substance Abuse Certificate for Direct Employment

Understand drug and alcohol abuse and treatment methods. Complete this program by taking classes exclusively on evenings, or in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTSUBSTABUS.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6746

Program/Major Codes: **CRTSUBSTABUS/SSA**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
SSE 110	Introduction to Social Welfare (F-Sp-Su) .....	3
SSE 121	Study of Substance Abuse (F-Sp).....	3
SSE 123	Substance Abuse Prevention (Sp) .....	3
SSE 220*	Treatment of the Substance Abuser (Sp) .....	3
SSE 222*	Political, Legal and Ethical Aspects of Drug Use (F) .....	3
SSE 285*	Foundations of Social Work Practice (F-Sp).....	3
<b>Total credits as displayed.....</b>		<b>18</b>

\* For additional prerequisite information, check course section.

## Social Services Domestic Violence Intervention Certificate for Direct Employment

Understand the dynamics of domestic violence including crisis intervention and treatment methods. Complete this program by taking classes exclusively on weekdays, or in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more <http://www.pima.edu/programs-courses/gainful-employment/CRTDOMESVIOL.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6746

Program/Major Codes: **CRTDOMESVIOL/SSD**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
SOC 127	Marriage and the Family (F-Sp).....	3
SSE 110	Introduction to Social Welfare (F-Sp-Su) .....	3
SSE 140	Domestic Violence: Causes and Cures (Sp).....	3
SSE 146	Child Abuse Intervention and Protection (F).....	3
SSE 242*	Crisis Intervention, Theory and Techniques (Sp) (was SSE 202) .....	3
SSE 285*	Foundations of Social Work Practice (F-Sp).....	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 in a combination of weekdays and evenings.

### 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.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTHEALTHADV.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6996

Lead Faculty: 206-6958

Program/Major Codes: **CRTHEALTHADV/CHA**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
SSE 110	Introduction to Social Welfare (F-Sp-Su) .....	3
SSE 170	Community Health Advising (F-Sp) .....	3
SSE 205	Case Report Writing (F) .....	3
SSE 293*	Community Health and Development Field Experience (F-Sp).....	4
Social Services Elective: Select one course below for 3 credit hours:		
SSE 121 (F), 140 (Sp), 146 (F), 160 (F), or 210* (F-Sp).....		3
<b>Total credits as displayed.....</b>		<b>16</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 by taking classes exclusively on weekdays, or in a combination of weekdays and evenings and/or online.

### What can I do with this degree?

**Career Options:** Apply for an 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

Program/Major Codes: **AOASOCIOLOGY/SOC**

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

Course lists for each General Education category listed below can be found starting on page 57.

English Composition .....	6
Humanities and Fine Arts .....	6
Biological and Physical Sciences.....	8
Mathematics .....	3
Social and Behavioral Sciences .....	3
SOC 101 fulfills 3 credits of this requirement. Complete a non-SOC course from this category.	
Other Requirements.....	†
SOC 120 and 201 fulfill this requirement.	
Special Requirements	
SOC 120 fulfills the C and G requirements. The I requirement can be fulfilled by selecting appropriate courses in the above categories or by selecting SOC 203 as an elective.	
<b>Subtotal .....</b>	<b>26¥</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
SOC 101	Introduction to Sociology (F-Sp-Su) SUN# SOC 1101 .....	3
SOC 120*	Current Social Problems (F-Sp) .....	3
SOC 127	Marriage and the Family (F-Sp).....	3
SOC 201	Race, Ethnicity, Minority Groups and Social Justice (F-Sp) SUN# SOC 2215 .....	3
SOC 204	Gender Identities, Interactions and Relations (F).....	3
<b>Subtotal .....</b>		<b>15</b>

### Sociology Electives

Select three credits from the following courses:

SOC 110	Introduction to Cities and Global Society (n/o) .....	3
SOC 130*	Social World of Drugs (F-Sp) .....	3
SOC 140	Sociology of Religion .....	3
SOC 166	Social Gerontology (Sp).....	3
SOC 203	Sociology of Utopia (n/o) .....	3
SOC 215*	Human Sexuality (F-Sp-Su) .....	3
SOC 280	Sociology of Education (n/o).....	3
SOC 289*	Topics in Community Involvement (n/o) .....	3
SOC 296*	Individual Studies in Sociology (n/o) .....	3
<b>Subtotal .....</b>		<b>3</b>



<b>Required Support Courses</b>	
Second Language Requirement .....	16
Completion of a language course numbered 202, fourth semester level. (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.	
<b>Subtotal .....</b>	<b>16</b>
<b>Total credits as displayed.....</b>	<b>60</b>

- † Core or support course(s) fulfill this requirement.
- ¥ The AGEC requires 35 credits. This subtotal shows the AGEC credits not fulfilled by core, support, or second language courses.
- \* This course has a prerequisite, co-requisite, or recommendation. See course description section.

## Spanish

A student planning to obtain a degree with an option in Spanish should follow the **Associate of Arts Degree for Transfer in Liberal Arts**. See an advisor or counselor and to plan a course of study using the transfer guide.

Program Identification Code: **AOALIBRALART**

## Surface Mining Technology

The following Surface Mining Technology programs (two certificates and one AAS) require an active, local mining industry, but the struggling economy forced a decrease in mining activity. Because of this, these programs will not be offered until the mining industry recovers.

**Locations:** Desert Vista Campus and approved mining sites.

**Department/Contact Information:**  
206-5098

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### Basic Surface Mining Technology — Certificate for Direct Employment

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/program-courses/gainful-employment/CRTSMB.pdf>

Program/Major Codes: **CRTSMB/SMB**

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### Advanced Surface Mining Technology – Certificate for Direct Employment

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/program-courses/gainful-employment/CRTSMA.pdf>

Program/Major Codes: **CRTSMA/SMA**

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### Surface Mining Technology – Associate of Applied Science for Direct Employment

Program/Major Codes: **AASSMT/SMT**

# Technical Writing and Communication

## Technical Writing and Communication – Post-degree Certificate for Direct Employment

Master the essential skills needed for a career in technical writing and communication. Technical writers communicate ideas clearly and concisely in manuals, reports, journal articles, web pages and other forms of print and electronic communication. Complete this program by taking classes in a combination of online and weekdays and/or evenings.

### What can I do with this certificate?

**Career Options:** Obtain employment or further your career as a technical writer in business or industry, or begin a career as a freelance writer.

**Academic Options:** Continue your studies by taking additional related coursework in writing and/or web development.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/program-courses/gainful-employment/CRDTWC.pdf>

**Locations:** Downtown Campus and West Campus

**Department/Contact Information:**

Dean – Downtown: 206-7045

Dean – West: 206-6690

Program/Major Codes: **CRDTWC/TWC**

### Program Prerequisites

Before enrolling in this program, you must fulfill the following requirements.

Associate or bachelor's degree in a related field from an accredited institution.

WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
	or Equivalent coursework that will transfer.	
CIS 100	Introduction to Computers (F-Sp-Su).....	0-3
or CSA 101	Computer Fundamentals (F-Sp-Su)	
	or Comparable knowledge and skills in computer applications.	
<b>Subtotal</b> .....		<b>6-9</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 103	Introduction to Digital Arts (F-Sp-Su) .....	3
DAR 120	Applied Computer Graphics (F-Sp-Su).....	4
WRT 140*	Writing and Editing Technical Communications (F-Sp) .....	3
WRT 254*	Advanced Professional Communication (Sp) .....	3
Technical Elective – Complete one course from the following: .....		3-4
CSA 120*	Word Processing: Word (F-Sp-Su)	
CIS 121*	Web Publishing (F-Sp-Su)	
DAR 256*	Web Design: Dreamweaver (F-Sp)	
<b>Subtotal</b> .....		<b>16-17</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>22-26</b>

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

# Technology

Prepare for careers in high-tech industries with courses in electronics, optics, automated systems, and computer information systems.

## Electronic Assembly Technology — Certificate for Direct Employment

Get an overview of technology and preparation to work in the area of electronic assembly through training in basic scientific electrical principles, printed circuit boards, soldering and use of assembly tools. Complete this program by taking classes in a combination of weekdays, evenings and weekends.

### What can I do with this certificate?

**Career Options:** Entry-level employment in electronic, automated, information and optical systems.

**Academic Options:** Continue your studies by applying your coursework towards the Technology AAS.

**More Information:** Review program costs, student debt, on-time graduation and more  
<http://www.pima.edu/programs-courses/gainful-employment/CRTTECHNOLGY.pdf>

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6763

Lead Faculty: 206-6603

Program/Major Codes: **CRTTECHNOLGY/TEE**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
TEC 100	Introduction and Overview of Electronics (F-Sp).....	3
TEC 105	Electronic Assembly Tools (F) .....	3
TEC 121/121LB*	Basic Electric and Magnetic Properties (F).....	4
TEC 126*	Electronics Construction and Assembly (F).....	3
TEC 127*	Printed Circuit Board Solder Assembly (n/o) .....	3
<b>Subtotal</b> .....		<b>16</b>
<b>Required Support Courses</b>		
TEC 111	Applied Math I (F) .....	2
TEC 112*	Applied Math II (Sp) .....	2
TEC 130/130LB	Computer Assembly and Testing (F-Sp) .....	4
<b>Subtotal</b> .....		<b>8</b>
<b>Total credits as displayed</b> .....		<b>24</b>

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

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

Gain a broad understanding of electronics, optics or computer hardware and networking principles. Each of the concentrations listed below has an electronics/optics based core to prepare students for working in industry. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this degree?

**Career Options:** Entry-level employment in a broad range of general electronics fields.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** West Campus

**Department/Contact Information:**

Dean: 206-6763

Lead Faculty: 206-6603

Program/Major/Concentration Codes: **AASTEK/TEK/\*\*\*\*** (see concentration codes below)

**General Education Requirements - A grade of C or better is required for graduation.**

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....†	†
TEC 101 and TEC 113 fulfill this requirement.	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	†
Core and support courses fulfill this requirement.	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>12¥</b>

Course Number	Course Title	Credit Hours
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**Required Core Courses - A grade of C or better is required for graduation.**

TEC 100	Introduction and Overview of Electronics (F-Sp).....	3
TEC 101*	Physics for Technology (F-Sp).....	3
TEC 103*	Light and Optical Systems (Sp).....	2
TEC 113*	Problem Solving for Electronics and Optics (F) .....	3
TEC 117*	Optical Assembly Techniques (F) .....	3
TEC 121/121LB*	Basic Electric and Magnetic Properties (F-Sp).....	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 (Sp).....	3
TEC 128/128LB*	Electronic Measurements (Sp) .....	3
TEC 130/130LB	Computer Assembly and Testing (F-Sp).....	4
<b>Subtotal .....</b>	<b>40</b>	

**Required Support Course**

TEC 160*	Microcomputers and Programming Techniques (F) .....	3
<b>Subtotal .....</b>	<b>3</b>	
<b>Subtotal for Required Core and Support Courses.....</b>	<b>43</b>	

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

Complete one of the following concentrations: ..... 18-22

**Electronic** (Concentration Code: TEKE)

TEC 221*	Linear Devices (Sp).....	3
TEC 222/222LB*	Electromechanical Devices and Systems (Sp) .....	4
TEC 225/225LB*	Fluid Devices and Automated Systems (F).....	3
TEC 228/228LB*	RF and Microwave Devices (F) .....	4
TEC 250/250LB*	Digital Devices (F).....	4
TEC 251/251LB*	Analog Circuits (Sp).....	4
<b>Subtotal .....</b>	<b>22</b>	

**Optics** (Concentration Code: TEKO)

TEC 221*	Linear Devices (Sp).....	3
TEC 222/222LB*	Electromechanical Devices and Systems (Sp) .....	4
TEC 225/225LB*	Fluid Devices and Automated Systems (F).....	3
TEC 286*	Fiber Optics Installation and Testing (F) .....	3
TEC 287*	Laser Fundamentals (Sp).....	3
TEC 288*	Optical Testing (Sp) .....	4
<b>Subtotal .....</b>	<b>20</b>	

**IT Specialist** (Concentration Code: TEKI)

TEC	132/132LB*	Computer Systems Servicing (Sp) .....	4
TEC	230/230LB*	Peer-to-Peer Networking and Networking Cabling Fundamentals (F) .....	4
CIS	121*	Web Publishing (F-Sp-Su) .....	3
CIS	137*	Introduction to Unix Operating Systems (F-Sp-Su) .....	3
CIS	220*	Novell Netware Networking and Administration (F-Sp) .....	4
<b>Subtotal</b> .....			<b>18</b>
<b>Total Credits as Displayed</b> .....			<b>73-77</b>

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

# Therapeutic Massage

## Therapeutic Massage — Certificate for Direct Employment

Learn techniques to alleviate chronic pain, reduce stress, strengthen the immune system, and promote healing through therapeutic massage. Program includes clinical practice in a professional atmosphere and prepares students for the national therapeutic massage and bodywork exam and state licensure. Complete this 1,000 hour plus program by taking classes exclusively on weekdays or in a combination of weekdays and evenings.

**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 health declaration, immunizations, drug screening and fingerprinting.
- Complete prerequisite coursework with a grade of C or better prior to entry into the Massage Therapy Practice classes.

**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.
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. Students must be able to lift, carry, set up and take down massage tables and chairs. The clinical experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting clients' wellness. Students must be able to demonstrate rational and appropriate behavior in day-to-day situations and under stressful conditions. Students will be required to receive massage which results in increased local and systemic circulation, increased venous return, relaxed muscles and overall relaxation. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.
4. Present proof of immunization or immunity for MMR/Varicella/Hep-B.
5. Show proof of negative TB skin test or negative chest x-ray for TB.
6. Maintain health insurance and a CPR card at the Health Care Provider Level throughout the program.

### *What can I do with this certificate?*

**Career Options:** Work as a massage therapist in a variety of wellness, medical and corporate facilities, on cruise ships or as a private practitioner.

**Academic Options:** Continue your studies and earn an associate's degree in therapeutic massage.

**Location:** Northwest Campus

**Department/Contact Information:**

Dean: 206-2216

Lead Faculty: 206-2263

Program/Major Codes: **CRTTMA/TMC**

### Program Prerequisites

Before enrolling in TMA 202IN (or higher), you must fulfill the following requirements with a grade of C or better.

BIO 160IN, TMA 101, TMA 120, TMA 210, WED 110, WED 111 .....	\$
<b>Subtotal .....</b>	<b>\$</b>



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

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 fulfills this requirement.	
Analysis and Critical Thinking Requirement.....	†
BIO 160IN fulfills the credit requirement for this category, but students must still meet math competency.**	
<b>Subtotal .....</b>	<b>0-3‡</b>

<b>Course Number</b>	<b>Course Title</b>	<b>Credit Hours</b>
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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-Su) .....	4
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 215*	Introduction to Pathology for Massage and Bodywork (F) .....	3
TMA 222*	Business Management for Massage and Bodywork (F-Sp) .....	3
TMA 290LC*	Therapeutic Massage Clinical (Sp) .....	3
TMA 291*	Internship in Therapeutic Massage (Sp) .....	1
WED 110	Introduction to Complementary and Alternative Medicine (F-Su) .....	3
WED 111	Self Care for Personal Wellness (Sp) .....	2
<b>Subtotal .....</b>		<b>46</b>

**Required Support Courses**

WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
<b>Subtotal .....</b>		<b>3</b>
<b>Total credits as displayed with program prerequisites .....</b>		<b>49-52</b>

† Core or support course(s) fulfill this requirement.  
 ‡ General Education requires 6 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.  
 \*\* The math competency can be met by assessment or math coursework. See the General Education section of the catalog for details.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.  
 § Credits counted below.

## Therapeutic Massage — Associate of Applied Science Degree for Direct Employment

Learn techniques to alleviate chronic pain, reduce stress, strengthen the immune system, and promote healing through therapeutic massage while earning an Associate Degree. Program includes clinical practice in a professional atmosphere and prepares students for the national therapeutic massage and bodywork exam and state licensure. Complete this 1,000 hour plus program by taking classes exclusively on weekdays or in a combination of weekdays and evenings.

### 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 health declaration, immunizations, drug screening and fingerprinting
- Complete prerequisite coursework with a grade of C or better prior to entry into the Massage Therapy Practice classes.

### 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.
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. Students must be able to lift, carry, set up and take down massage tables and chairs. The clinical experience also places students under considerable mental and emotional stress as they undertake responsibilities and duties impacting clients' wellness. Students must be able to demonstrate rational and appropriate behavior in day-to-day situations and under stressful conditions. Students will be required to receive massage which results in increased local and systemic circulation, increased venous return, relaxed muscles and overall relaxation. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.
4. Present proof of immunization or immunity for MMR/Varicella/Hep-B.
5. Show proof of negative TB skin test or negative chest x-ray for TB.
6. Maintain health insurance and a CPR card at the Health Care Provider Level throughout the program.

### 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 program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Northwest Campus

**Department/Contact Information:**

Dean: 206-2216

Lead Faculty: 206-2263

Program/Major Codes: **AASTMA/TMA**

### Program Prerequisites

Before enrolling in TMA 202IN (or higher), you must fulfill the following requirements with a grade of C or better.

BIO 160IN, TMA 101, TMA 120, TMA 210, WED 110, WED 111 .....	\$
<b>Subtotal</b> .....	<b>\$</b>

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

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	†
WRT 101 and either WRT 102 or SPE 120 fulfill this requirement.	
Analysis and Critical Thinking Requirement.....	2
BIO 160IN fulfills 4 credits of this requirement, but students must still meet math competency. If math competency is met by assessment, students will need to complete 2 more credits in Analysis and Critical Thinking category.	
Humanities and Social Science Requirement .....	2
PSY 101 fulfills 4 credits in the Social Science category. Complete a course from the Humanities & Fine Arts or the Leadership & Ethics category.	
Computer and Information Literacy.....	1-3
(CSA 100 or 101 is recommended)	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>5-7‡</b>

<b>Course Number</b>	<b>Course Title</b>	<b>Credit Hours</b>
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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-Su) .....	4
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 215*	Introduction to Pathology for Massage and Bodywork (F) .....	3
TMA 222*	Business Management for Massage and Bodywork Practitioners (F-Sp-Su) .....	2
TMA 290LC*	Therapeutic Massage Clinical (Sp) .....	3
TMA 291*	Internship in Therapeutic Massage (Sp) .....	1
WED 110	Introduction to Complementary and Alternative Medicine (F-Sp) .....	3
WED 111	Self Care for Personal Wellness (Sp) .....	2
<b>Subtotal .....</b>	<b>46</b>	

**Required Support Courses**

ACC 100	Practical Accounting Procedures (F-Sp-Su).....	3
PSY 101	Introduction to Psychology (F-Sp-Su) SUN# PSY 1101 .....	4
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101 .....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102 .....	3
or SPE 120	Business and Professional Communication (F-Sp-Su)	
<b>Subtotal .....</b>	<b>13</b>	
<b>Total credits as displayed with program prerequisites .....</b>	<b>64-66</b>	

† Core or support course(s) fulfill this requirement

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

§ Credits counted below.

# Translation and Interpretation

## Translation and Interpretation 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 exclusively on weekdays or in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Translate written documents between English and Spanish.

**Academic Options:** Continue your studies by completing the Associate of Applied Science degree.

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7045

Lead Faculty: 206-7274

Program/Major Codes: **CRTRANSLATE/TRS**

Course Number	Course Title	Credit Hours
<b>Program Prerequisites</b>		
Before enrolling in this program (TRS 102 or higher) you must fulfill the following requirements.		
WRT 101* or WRT 107*	Writing I (F-Sp-Su) .....	3
WRT 102* or WRT 108*	Writing II for Non-Native Speakers of English (F-Sp) .....	3
Pass a proficiency test or completion of the following:		
SPA 103*	Beginning Spanish for Spanish Speakers (F-Sp) .....	0-4
SPA 203*	Writing and Oral Skills for Spanish Speakers (F-Sp) .....	0-4
SPA 253*	Intermediate Spanish for Spanish Speakers (F-Sp) .....	0-4
SPA 254*	Intermediate Grammar and Writing for Spanish Speakers (F-Sp) .....	0-3
Demonstrate 50 percent competency translating a document without aid.		
<b>Subtotal</b> .....		<b>6-21</b>
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
TRS 101	Introduction to Translation and Interpretation (F-Sp) .....	3
TRS 102*	English and Spanish for Translation (F-Sp) .....	4
TRS 120IN*	Technology for Translation and Interpretation (Sp) .....	2
TRS 150 or TRS 203	Survey of Translation Specialty Areas (Sp) Consecutive Interpretation and Sight Translation (F) .....	4
TRS 160* or TRS 270*	Translation in Specialty Areas (F) Simultaneous Interpretation (Sp) .....	4
TRS 161* or TRS 162*	Medical Spanish/English Interpreting (F) Introduction to Legal Spanish/English Interpretation (Sp) .....	3
TRS 202*	Interpretation Techniques (Sp) .....	3
TRS 282*	Advanced Project in Translation (Sp) .....	4
<b>Subtotal</b> .....		<b>27</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>33-48</b>

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

## Translation and Interpretation Studies—Associate of Applied Science Degree for Direct Employment

This program is designed to prepare students for entry level employment in translation or interpretation. The Associate of Applied Science degree has course work to develop skills specific to the translation of written documents and the interpretation of oral passages from a source language into a target language. Through a combination of theory and practice, students will gain experience in translating or interpreting in specialty areas such as health care, legal, literary, and business. Complete this program by taking classes in a combination of weekdays and evenings.

### What can I do with this certificate?

**Career Options:** Translate written documents and/or interpret oral passages from a source language into a target language between English and Spanish

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7045

Lead Faculty: 206-7274

Program/Major Codes: **AASTRANSLATE/TRI**

### Program Prerequisites

Before enrolling in this program (TRS 102 or higher) you must fulfill the following requirements.

WRT 101* or WRT 107*	Writing I (F-Sp-Su) .....	\$
	Writing I for Non-Native Speakers of English (F-Sp)	
WRT 102* or WRT 108*	Writing II (F-Sp-Su) .....	\$
	Writing II for Non-Native Speakers of English (F-Sp)	
Pass a proficiency test or completion of the following:		
SPA 103*	Beginning Spanish for Spanish Speakers (F-Sp) .....	0-4
SPA 203*	Writing and Oral Skills for Spanish Speakers (F-Sp) .....	0-4
SPA 253*	Intermediate Spanish for Spanish Speakers (F) .....	\$
SPA 254*	Intermediate Grammar and Writing for Spanish Speakers (Sp) .....	0-3
Demonstrate 50 percent competency translating a document without aid and interpreting an oral presentation.		
<b>Subtotal</b> .....		<b>0-11</b>

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement .....	†
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement .....	6
Humanities and Social Science Requirement .....	†
ANT 102 and SPA 253 complete this requirement.	
Computer and Information Literacy Requirement .....	†
CSA 100 or 101 fulfills this requirement.	
Special Requirements	
ANT 102 fulfills this requirement	
<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>		
TRS 101	Introduction to Translation and Interpretation (F-Sp).....	3
TRS 102*	English and Spanish for Translation (F-Sp).....	4
TRS 120IN*	Technology for Translation and Interpretation (Sp).....	2
TRS 150	Survey of Translation Specialty Areas (Sp).....	4
TRS 160*	Translation in Specialty Areas (F).....	4
TRS 161*	Medical Spanish/English Interpreting (F).....	3
TRS 162*	Introduction to Legal Spanish/English Interpretation (Sp).....	3
TRS 202*	Interpretation Techniques (Sp).....	3
TRS 203*	Consecutive Interpretation and Sight Translation (F).....	4
TRS 270*	Simultaneous Interpretation (Sp).....	4
TRS 282*	Advanced Project in Translation (Sp).....	4
<b>Subtotal</b> .....		<b>38</b>
<b>Required Support Courses - A grade of C or better is required for graduation.</b>		
ANT 102	Introduction to Cultural Anthropology and Linguistics (F-Sp).....	3
CSA 100*	Computer Literacy (F-Sp-Su)	
or CSA 101*	Computer Fundamentals (F-Sp-Su).....	1-3
SPA 253*	Intermediate Spanish for Spanish Speakers (F-Sp).....	4
WRT 101*	Writing I (F-Sp-Su) SUN# ENG 1101.....	3
WRT 102*	Writing II (F-Sp-Su) SUN# ENG 1102.....	3
Electives	Complete one of the following courses.....	3-4
AJS 101	Introduction to Administration of Justice Systems (F-Sp-Su)	
BUS 210*	International Business (n/o)	
BUS 220	Legal Environment of Business (F-Sp-Su)	
HED 136	Introduction to Health Sciences (Sp)	
HIT 105	Medical Terminology (Sp)	
PAR 101	Introduction to Paralegal Careers (F-Sp)	
SPA 240*	Grammar and Composition (n/o)	
SPA 250*	Spanish Phonetics (n/o)	
SPA 254*	Intermediate Grammar and Writing for Spanish Speakers (F-Sp)	
SPE 110	Public Speaking (F-Sp-Su)	
SPE 120	Business and Professional Communication (F-Sp-Su)	
<b>Subtotal</b> .....		<b>17-20</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>61-75</b>

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

¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

§ Required as a support course. Credits counted below.

# 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 by taking classes exclusively on weekdays, or exclusively on weekends.

**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

**Location:** Community Campus

**Department/Contact Information:**

Dean: 206-6424

Lead Faculty: 206-2744

**Prerequisite(s):** Meet admission requirements as outlined by the Truck Driver Training Program.

Program/Major Codes: **CRTRUCKCLSA/TDA**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
TDT 118*	Basic Vehicle Operations – Class A Commercial Driver's License (**) (F-Sp-Su).....	5
TDT 119*	Basic Driving Maneuvers – Class A Commercial Driver's License (**) (F-Sp-Su).....	3.5
<b>Total credits as displayed.....</b>		<b>8.5</b>

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

\*\* Contact the department at 206-2744 for course offerings.

# 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 by taking classes exclusively on weekdays.

### 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:**

Dean: 206-7694

Lead Faculty: 206-7414

Program/Major Codes: **CRTVEP/VEP**

Course Number	Course Title	Credit Hours
<b>Required Core Course - A grade of C or better is required for graduation.</b>		
VET 106*	Veterinary Practice Assistant I (F-Sp-Su).....	3
VET 107*	Veterinary Practice Assistant II (F-Sp-Su).....	3
VET 108*	Introduction to Veterinary Facility Practices (F-Sp-Su).....	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 by taking classes exclusively on weekdays.

**Before enrolling in this program,** you must meet certain requirements, in addition to the program prerequisites listed below:

- Meet the requirements for admission as a credit student at Pima Community College.
- Have prerequisite coursework completed with the grade of C or higher.
- Have proof of personal medical insurance. Student health insurance is available through Pima. If you are not able to obtain insurance under your parents' or an employer's policy, student insurance coverage may be available to you from various carriers.
- Have proof of immunizations: pre-exposure rabies vaccination series and tetanus toxoid. Proof of tetanus toxoid in the last 8 years. Proof of an MMR vaccination series. Rabies immunizations will also be needed to be completed while in the program.
- Complete program admissions procedures. Submit a Program Admission Form (deadline is noon on May 1, 2013)
- 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 having ability to communicate with veterinarians and clients. This is a physically demanding occupational field.



**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 was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima’s Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** East Campus

**Department/Contact Information:**

Dean: 206-7694

Lead Faculty: 206-7414

Program/Major Codes: **AASVETTECH/VET**

**Program Prerequisites**

Reading assessment score into REA 112 or completion of REA 091* .....	0-4
MAT 122* or Higher with a grade of C or better .....	5
BIO 156IN or BIO 181IN with a grade of C or better .....	5
CHM 130/130LB/130IN or CHM 151/151LB/151IN with a grade of C or better .....	5
CSA 100** with a grade of C or better .....	5
<b>Subtotal .....</b>	<b>0-4</b>

**General Education Requirements - A grade of C or better is required for graduation.**

*Course lists for each General Education category listed below can be found starting on page 55.*

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	†
BIO and MAT program prerequisites fulfill this requirement.	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	†
CSA 100** fulfills this requirement.	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>12‡</b>

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 (Su) .....	3
VET 200*	Anesthetic and Surgical Nursing (F) .....	3
VET 205*	Radiology and Imaging Techniques (Sp) .....	3
VET 210*	Veterinary Nursing Procedures: Large Animal Care (Sp) .....	2
VET 211*	Veterinary Nursing Procedures:Avian, Exotic, and Lab Animals (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>	

<b>Required Support Courses</b>		
BIO	156IN	Intro Biology Allied Health (F-Sp-Su)
	Or BIO 181IN	General Biology I: Majors (F-Sp) SUN# BIO1181 .....
		4
CHM	130/130LB/130IN*	Fundamental Chemistry (F-Sp-Su) SUN# CHM 1130
	Or CHM 151/151LB/151IN*	General Chemistry I (F-Sp-Su) SUN# CHM 1151 .....
		5
CSA	100**	Computer Literacy (F-Sp-Su) .....
		1
MAT	122***	Intermediate Algebra (F-Sp-Su).....
		3
<b>Subtotal</b> .....		<b>13</b>
<b>Total credits as displayed with program prerequisites</b> .....		<b>72-76</b>

\*\*\* A higher level MAT course may be used to meet this requirement.  
 † Core or support course(s) fulfill this requirement.  
 ¥ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.  
 \* This course has a prerequisite, co-requisite, or recommendation. See course description section.  
 \*\* CSA 101 or CIS 100 may be substituted for CSA 100.  
 § Credits counted below.

# Welding

## Welding and Fabrication— Associate of Applied Science Degree for Direct Employment

Learn various welding and pipe fabrication techniques. Complete this program by taking classes in a combination of weekdays and evenings/weekends.

### What can I do with this degree?

**Career Options:** Entry-level employment as a welder.

**Academic Options:** While this program was not designed to transfer to a 4-year university, it may apply toward Bachelor of Applied Science (BAS) or other programs. See Pima's Transfer Partnerships page ([www.pima.edu/transfer/partnerships](http://www.pima.edu/transfer/partnerships)).

**Location:** Downtown Campus

**Department/Contact Information:**

Dean: 206-7134

Lead Faculty: 206-7159

Program/Major Codes: **AASWELDING/WLD**

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 55.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....†	†
GTM 105 and MAC 275 fulfill this requirement.	
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	†
CAD 101 fulfills this requirement.	
Special Requirement	
The C or G requirement should be fulfilled by completing an appropriate course in the above categories.	
<b>Subtotal .....</b>	<b>12‡</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 275	Applied Metallurgy (F-Sp) .....	4
WLD 110	Basic Arc and Oxyacetylene Welding (F-Sp-Su) .....	4
WLD 115*	Blueprint Reading/Estimating (F-Sp).....	4
WLD 160*	Arc Welding (F-Sp).....	4
WLD 250*	Pipe Welding (F) .....	4
WLD 261*	Gas Metal Arc Welding (Sp).....	4
WLD 262*	Gas Tungsten Arc Welding (F-Sp).....	4
WLD 263*	Layout and Fabrication Welding (F).....	4
<b>Subtotal .....</b>	<b>32</b>	

### Required Support Courses

CAD 101	Computer Aided Drafting I (F-Sp-Su) .....	4
GTM 105*	Applied Technical Mathematics (F-Sp).....	3
Technical Electives	.....	9
Complete 9 credit hours from the following: OAP 111A, BCT, CAD, CSA, MGT, MAC, WLD.		
<b>Subtotal .....</b>	<b>16</b>	
<b>Total credits as displayed.....</b>	<b>60</b>	

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

‡ General Education requires 19-21 credits. This subtotal shows the Gen Ed credits not fulfilled by core, support, or second language courses.

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

## 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 degree, may be taken as an AA Creative Writing Emphasis, 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 or an advisor to plan their course of study using the appropriate transfer guide.

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### *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

# 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.

**NOTE: New SUN System: SUN#** (Shared Unique Number) is a prefix and number assigned to certain courses that represents course equivalency at all Arizona community colleges and the three public universities, no matter what prefix or number is used at the individual institutions. Learn more at <http://www.azsunsystem.com/>

### 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
Agriculture	AGR
American Indian Studies	AIS
Animal Science	ANS
Anthropology	ANT
Arabic	ARB
Archaeology	ARC
Art	ART
Art for Personal Development	APD
Astronomy	AST
Automotive Technology	AUT
Aviation Technology	AVM
Avionics Technician Training	ATT
Behavioral Health Services	BHS
Biology	BIO
Building and Construction Technology	BCT
Business	BUS
Career and Technical Education	CTE
Chemistry	CHM
Child Development Associate	CDA
Chinese	CHI
Clinical Research Coordinator	CRC
Computer Aided Design/Drafting	CAD
Computer Information Systems	CIS
Computer Software Applications	CSA
Cooperative Education	CED
Crime Scene Management	CSM
Culinary Arts	CUL
Dance	DNC
Dental Assisting	DAE
Dental Hygiene	DHE
Dental Laboratory Technology	DLT
Digital Arts	DAR
Direct Care Professional	DCP
Early Childhood Education	ECE
Economics	ECN
Education	EDU
Education – Special Education	EDS
Educational Technology Training	ETT
Electrical Utilities Technology	EUT
Emergency Medical Technology	EMT
Engineering	ENG
English as a Second Language	ESL
Environmental Technology	ENV
Experiential Education	EED
Fashion Design and Clothing	FDC
Finance	FIN
Fire Science	FSC

Fitness and Sport Sciences	FSS	Phlebotomy	PHB
Fitness and Wellness	FAW	Physics	PHY
Food Science and Nutrition	FSN	Political Science	POS
Foundations for Personal Change	FPC	Portuguese	POR
French	FRE	Professional Flight Technology	PFT
Game Design	GAM	Psychology	PSY
General Technical Writing	GTW	Public Administration	PAD
General Technical Mathematics	GTM	Public Works Supervision	PWS
Geography	GEO	Radiologic Technology	RAD
Geology	GLG	Reading	REA
Geospatial Information Studies	GIS	Religion	REL
German	GER	Reserve Officers Training Corps – ROTC Air Force	MLA
Global Studies	GLS	Reserve Officers Training Corps – ROTC Army	MLS
Health Care	HCA	Reserve Officers Training Corps – ROTC Navy	NSP
Health Continuing Education	HCE	Respiratory Therapy	RTH
Health Education	HED	Russian	RUS
Health Information Technology	HIT	Science for Teachers	SCT
History	HIS	Sign Language	SLG
Honors Program	HON	Social Services	SSE
Hotel and Restaurant Management	HRM	Sociology	SOC
Human Resources Management	HRS	Solar Technologies	SLR
Humanities	HUM	Spanish	SPA
Interior Design	IDE	Speech Communication	SPE
International Business Studies	IBS	Student Success	STU
Interpreter Training	ITP	Surface Mining Technology	SMT
Italian	ITA	Technology	TEC
Japanese	JPN	Theater	THE
Journalism	JRN	Therapeutic Massage	TMA
Korean	KOR	Tohono O’Odham	THO
Landscape Technician	LTP	Translation and Interpretation Studies	TRS
Latin	LAT	Travel Industry Operations	TVL
Law Enforcement Academy	LEA	Truck Driver Training	TDT
Literature	LIT	Turkish	TUR
Logistics and Supply Chain Management	LGM	Veterinary Science	VSC
Machine Tool Technology	MAC	Veterinary Technology	VET
Management	MGT	Welding	WLD
Marketing	MKT	Wellness Education	WED
Mathematics	MAT	Women’s Studies	WST
Medical Assistant	MDA	Writing	WRT
Medical Laboratory Technician	MLT		
Mexican-American Studies	MAS		
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		

## Accounting

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### ACC 100 Practical Accounting Procedures

3 cr. hrs. 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 SUN# ACC 2201

3 cr. hrs. 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 SUN# ACC 2202

3 cr. hrs. 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 122 or higher before enrolling in this course.

Offered: Fall, Spring, Summer.

### ACC 150 Payroll Accounting

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Basic skills in tax preparation. Includes volunteer assistance techniques and procedures; taxable revenues, expenses, and appropriate line items on various forms; completion and discussion of tax returns with clients; additional federal tax issues and forms on individual tax returns; and training in current tax preparation software.

**Prerequisite(s):** ACC 101.

*Information: Students must pass an Internal Revenue Service (IRS) volunteer tax preparer certification exam and perform a minimum of 18 service learning hours at a community VITA site to successfully complete this course.*

*Information: May be taken four times for a maximum of twelve credit hours.*

Offered: Spring.

### ACC 173 Governmental Accounting

3 cr. hrs. 3 periods (3 lec.)

Accounting practices and procedures used in governmental units. Topics include basic characteristics of fund accounting, functions of governmental accounting, budgetary process, basic fund accounting system, financial reporting objectives, and government-wide financials.

**Prerequisite(s):** ACC 101.

Offered: Spring.

### ACC 190 Internship in Accounting

3 cr. hrs. 15 periods (15 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 200 Computerized Accounting I**

4 cr. hrs. 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 cr. hrs. 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, Spring.

**ACC 202 Intermediate Accounting II**

3 cr. hrs. 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: Fall, Spring.

**ACC 203 Cost Accounting**

3 cr. hrs. 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: Fall.

**ACC 204 Individual Tax Accounting**

4 cr. hrs. 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: Spring.

**ACC 210 Computerized Accounting II**

3 cr. hrs. 3 periods (3 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: Spring.

**ACC 215 QuickBooks Computer Accounting**

3 cr. hrs. 3 periods (3 lec.)

Use of current QuickBooks software to set up and maintain accounting records for a small business. Includes modular accounting involving accounts receivable, accounts payable, inventory, and payroll features.

**Prerequisite(s):** ACC 100 or 101.

Offered: Fall, Spring, Summer.

**ACC 250 Certified Bookkeeper Review**

3 cr. hrs. 3 periods (3 lec.)

Preparation for the American Institute of Professional Bookkeepers (AIPB) Certified Bookkeeper examination and review of accounting theory and practical bookkeeping skills. Includes the 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: May not be offered this year, check class schedule.

**ACC 255 Business Admissions Exam Review**

1 cr. hrs. 1 periods (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 either MAT 172 or MAT 173.

**Recommendation:** Students have a "B" or better in prerequisites due to rigorous program entrance requirements. ACC 102 and math requirements 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.

*Information:* May be taken four 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 cr. hrs. 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.

**Prerequisite(s):** ACC 101.

Offered: Spring.

**ACC 267 Computer Fraud Detection**

1 cr. hrs. 1 periods (1 lec.)

Overview of the fundamentals of computer fraud examination. Includes the examination methodology used within the field, Internet and e-commerce fraud, evidence gathering, prevention, and security.

**Prerequisite(s):** ACC 260.

Offered: May not be offered this year, check class schedule.

**ACC 296 Independent Study in Accounting**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Independent study projects or special interest areas in accounting under the supervision of a faculty member.

**Prerequisite(s):** ACC 101, 102.

*Information:* May be taken two times for a maximum of six credit hours.

Offered: Fall, Spring, Summer.

## Administration of Justice

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**AJS 101 Introduction to Administration of Justice Systems SUN# AJS 1101**

3 cr. hrs. 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 cr. hrs. 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.

**AJS 115 Criminal Procedures**

3 cr. hrs. 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.

**AJS 123 Corrections as a Process**

3 cr. hrs. 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, Summer.

**AJS 124 Ethics and the Administration of Justice**

3 cr. hrs. 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.

**AJS 150 Defensive Tactics for Law Enforcement**

3 cr. hrs. 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.

**AJS 170 Forensic Pathology and Death Investigation**

3 cr. hrs. 3 periods (3 lec.)

Basic principles of forensic pathology, demonstrating the use of autopsy findings and death scene investigation to determine the cause and manner of death for deaths that fall under the jurisdiction of the medical examiner in the state of Arizona. Includes postmortem changes; sudden and unexpected, suspicious and violent deaths; and postmortem identification.

Offered: Fall, Spring, Summer.

**AJS 201 Rules of Evidence**

3 cr. hrs. 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, Summer.

**AJS 204 Criminal Investigations**

3 cr. hrs. 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: Fall.

**AJS 210 Police Community and Human Relations**

3 cr. hrs. 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.

**AJS 212 Juvenile Justice Procedures**

3 cr. hrs. 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.

**AJS 225 Criminology**

3 cr. hrs. 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.

**Prerequisite(s):** AJS 101.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall.

**AJS 246 Race and Ethnicity Issues in the Administration of Justice**

3 cr. hrs. 3 periods (3 lec.)

The course examines the impact of cultural diversity on law enforcement to include a discussion of cultural awareness, bias, prejudice, training, recruitment and cross cultural communication. Police challenges in engaging with specific racial/ethnic groups are examined, to include Asian/Pacific Americans, African-Americans, Latino/Hispanic Americans, Arab Americans, Native Americans and others. Homeland security concerns, racial profiling and hate crimes are also addressed.

Offered: Fall, Spring, Summer.

**AJS 260 Criminal Justice Management**

3 cr. hrs. 3 periods (3 lec.)

A practical examination of the challenges of criminal justice management. Includes unique requirements for these agencies and departments, as differentiated from non-governmental organizations; management theories as applied to criminal justice agencies; effective communication, leadership styles, budgets, decision making, and model management practices. Also includes special problems such as managing difficult or unethical employees; use of force issues; sexual and gender harassment; and work force issues including recruitment, retention, diversity, and training.

*Information: Consent of instructor required before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

**AJS 280 Terrorism in the 21st Century**

3 cr. hrs. 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: Fall, Spring, Summer.

**AJS 290 Administration of Justice Field Experience**

3 cr. hrs. 15- periods (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.*

*Information: May be taken two times for a maximum of six credit hours.*

Offered: May not be offered this year, check class schedule.

## Agriculture

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**AGR 100 Introduction to Agribusiness**

3 cr. hrs. 3 periods (3 lec.)

Overview of agricultural business industries and careers. Includes history of agribusinesses, business planning and management, and financial and economic principles of agriculture.

Offered: May not be offered this year, check class schedule.

**AGR 101 Introduction to Agriculture Science**

3 cr. hrs. 3 periods (3 lec.)

Overview of topics, careers and practices in agriculture science. Includes food safety, biotechnology, and environmental and natural resources sciences. Also includes ethics, nutrition and disease as they relate to the agricultural sciences.

Offered: May not be offered this year, check class schedule.

**AGR 102 Introduction to Plants, Soils and Crops**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Overview of plant systems. Includes taxonomy, anatomy and physiology, and reproduction. Also includes the history of agriculture, and principles of crop and pest management.

Offered: May not be offered this year, check class schedule.

## American Indian Studies

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**AIS 101 Introduction to American Indian Studies I**

3 cr. hrs. 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.

## Animal Science

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**ANS 102 Introduction to Animal Industry**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Overview of livestock and poultry industries and practices. Includes production, marketing and distribution. Also includes application of scientific principles to health, behavior, nutrition, reproduction and performance.

Offered: May not be offered this year, check class schedule.

**ANS 170 Equine Anatomy and Physiology**

3 cr. hrs. 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 the student for further studies in equine science.

Offered: May not be offered this year, check class schedule.

**ANS 171 Horse Care and Management**

3 cr. hrs. 5 periods (2 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.

**ANS 172 Horse Health I**

3 cr. hrs. 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.

**ANS 173 Horse Health II**

3 cr. hrs. 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):** ANS 172.

Offered: May not be offered this year, check class schedule.

**ANS 195 Introduction to Research in Animal Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Introduction to the methods of research in Animal Science. Includes scientific laboratory procedures, experimental design, scientific writing, scientific ethics, and current research in working laboratories.

*Information: Three credit hours of Animal Science and consent of instructor are required before enrolling in this course.*

*Information: 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.*

Offered: May not be offered this year, check class schedule.

**ANS 196 Independent Study in Animal Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Introductory study of a particular Animal Science subject or subjects to hone skills while working in an independent format.

*Information: Three credit hours of Animal Science and consent of instructor are required before enrolling in this course.*

*Information: 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.*

Offered: May not be offered this year, check class schedule.

**ANS 213 Animal Genetics**

3 cr. hrs. 3 periods (3 lec.)

Principles of genetics. Includes classical, molecular and population genetics.

**Prerequisite(s):** BIO 100IN or higher.

Offered: May not be offered this year, check class schedule.

**ANS 215 Animal Anatomy and Physiology**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Anatomy and physiology of domestic animals. Includes structure and function of body systems. Also includes a review of basic cellular biology.

**Prerequisite(s):** BIO 100IN or higher.

Offered: May not be offered this year, check class schedule.

**ANS 276 Equine Conformation and Performance**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Physical and functional structure and movement of the horse. Includes lecture, video and live animal evaluations based on current industry standards, rules, and regulations of breed associations.

Offered: May not be offered this year, check class schedule.

**ANS 290 Animal Science Internship**

1-4 cr. hrs. 5-20 periods (5-20 lab)

Internship and work experience in an animal science field or laboratory. Includes setting, achieving, and evaluating goals for hands-on learning experiences in animal sciences. Also includes development of skills and knowledge needed to work in an animal science field or laboratory.

*Information: Six credit hours of Animal Science and consent of instructor are required before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

**ANS 295 Independent Research in Animal Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Experience in scientific laboratory research.

**Prerequisite(s):** ANS 195.

*Information: Nine credit hours of Animal Science and consent of instructor are required before enrolling in this course.*

*Information: Specific content to be determined by student and instructor.*

Offered: May not be offered this year, check class schedule.

**ANS 296 Independent Study in Animal Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Advanced study of a particular Animal Science subject or subjects to hone skills while working in an independent format.

*Information: Consent of instructor is required before enrolling in this course.*

*Information: 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.*

Offered: May not be offered this year, check class schedule.

## Anthropology

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### ANT 101 Human Origins and Prehistory

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Technical, sociocultural, and political information on environmental science and technology for non-environmental majors. Includes ecosystems, population impacts, hydrological systems, air pollution, and environmental toxins. Also includes current topics such as the greenhouse 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 cr. hrs. 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.*

*Information: Same as ENV 105LB.*

Offered: Fall, Spring.

### ANT 109 Introduction to Global Studies

3 cr. hrs. 3 periods (3 lec.)

Survey of modern globalization. Includes the study of dimensions of globalization, global organizations, global politics, cultural globalization, the global economy, global environmental independence, and global social movements and counter movements. Also includes global interactions and their current effects on the restructuring of cultural, political, and economic institutions worldwide.

*Information: Same as GLS 109 and SOC 109.*

Offered: May not be offered this year, check class schedule.

### ANT 110 Buried Cities and Lost Tribes

3 cr. hrs. 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.

**ANT 112 Exploring Non-Western Cultures**

3 cr. hrs. 3 periods (3 lec.)

Anthropological survey of non-Western cultures. Includes history and development of cultural anthropology, research methods, and relevant theories of the field. Also includes major cultural characteristics of pre-colonial, non-Western, subsistence cultures; making cross-cultural comparisons and contrasts with the post-colonial era; and considering a global context. Also includes a writing emphasis.

Offered: Fall, Spring, Summer.

**ANT 127 History and Culture of the Mexican-American in the Southwest**

3 cr. hrs. 3 periods (3 lec.)

Historical survey of Mexicano(a)/Chicano(a) people from their indigenous origins in Meso-America and the Gran Chichimeca to the present in the United States. Includes historical writings, movements north under Spain and Mexico, repression and resistance. Also covers the political, economic, religious and social movements of the 19th, 20th and early 21st centuries.

*Information: Same as HIS 127.*

Offered: Fall, Spring.

**ANT 136 Body and Art**

3 cr. hrs. 3 periods (3 lec.)

A visual cultural exploration of how humans utilize the body as a vehicle for communicating and displaying personal and group identities. Includes anthropological and art historical study of types of permanent and temporary body decorations, masks, and performance and the ethical issues surrounding the study and use of imagery within and between cultures. Also includes the conceptual examination of global examples and an overview of practical projects to demonstrate the continued vitality of each mode of expression.

*Information: Same as ART 136.*

Offered: Fall, Spring.

**ANT 148 History of Indians of North America**

3 cr. hrs. 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 180 Artifact Identification: Tucson Basin**

1 cr. hrs. 2 periods (.5 lec., 1.5 lab)

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, flaked stone technology, ground stone tool identification, animal bone, marine shell artifacts and historical artifacts.

*Information: Same as ARC 180.*

Offered: Spring.

**ANT 181 Global Positioning Systems Basics**

1 cr. hrs. 1 periods (1 lec.)

Introduction to the use of Global Positioning Systems (GPS) receivers in a field setting for non-technical applications. Includes GPS vocabulary, operation, field data collection and data transfer. Also includes using equipment, resources and facilities of the Archaeology Centre.

*Information: Same as ARC/GIS 181.*

Offered: Fall, Spring.

**ANT 202 Sexuality, Gender and Culture**

3 cr. hrs. 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 Race, Ethnicity and Global Citizenship**

3 cr. hrs. 3 periods (3 lec.)

Anthropological survey of race, ethnicity, and global citizenship. Includes introduction to studies of race, ethnicity, and citizenship; ethnic and racial identities and group formation; and ethnoracial formations and globalization; and selected case studies.

Offered: May not be offered this year, check class schedule.

**ANT 204IN Human Evolution: Ape Men, Cave Women and Missing Links**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Study of human evolution and variation. Includes fossil evidence, environmental and cultural change, primate anatomy and behavior, human genetics, human biology and biocultural interactions. Also includes the use of museum collections, equipment, resources, and facilities of the Archaeology Centre.

Information: Same as ARC 204IN.

Offered: Spring.

**ANT 205 Introduction to Southwestern Prehistory**

3 cr. hrs. 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 cr. hrs. 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.

**ANT 208 United States-Mexico Borderlands**

3 cr. hrs. 3 periods (3 lec.)

Study of the U.S.-Mexico borderlands. Includes a historical overview from the borders origins in the U.S.-Mexico War and the Treaty of Guadalupe Hidalgo and a comprehensive review of the most significant events and issues of the mid- 20th Century to the present. Also includes geography, sociodemographics, political economy, migration and transmigrants, media representations, U.S. border policies, enforcement and security/insecurity, violence and peace, gender and sexuality, U.S.-Mexico relations, and popular culture.

Information: Same as MAS 208.

Offered: Spring.

**ANT 210 Cultural Anthropology**

3 cr. hrs. 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 cr. hrs. 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.

**ANT 225 Principles of Archaeology**

3 cr. hrs. 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; overview of theory in archaeological method and techniques of archaeological excavation; remote sensing, surveying, and mapping; dating methods; archaeological analysis and classification; interpretation of archaeological data; and the role of archaeology in cultural heritage protection and management. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

**Prerequisite(s):** ANT/ARC 101 or 110 or 205.

*Information: Prerequisite(s) may be waived with consent of instructor.*

*Information: Same as ARC 225.*

Offered: Fall.

**ANT 250 Archaeology Laboratory**

4 cr. hrs. 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, 180.

*Information: Same as ARC 250.*

*Information: Prerequisite(s) may be waived with consent of instructor. Same as ARC 250.*

Offered: Spring.

**ANT 253 Death and Grieving Across Cultures**

3 cr. hrs. 3 periods (3 lec.)

Introduction to death and grieving in various cultures. Includes developmental aspects of death and grieving, world view, near-death experience, cultural views of the dying process, ethical issues in death across cultures, socio-political implications in the treatment of dead bodies, disposition of the corpse, and grieving and bereavement.

Offered: Fall.

**ANT 261 Biological Anthropology**

3 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor.*

*Information: Same as ARC 261.*

Offered: May not be offered this year, check class schedule.

**ANT 265 Mapping Concepts**

1 cr. hrs. 1 periods (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/GIS 265.*

Offered: Fall.

**ANT 267 Introduction to Geographic Information Systems**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the technology of geographic information systems (GIS). Includes the evolution of the technology, applications, benefits and costs, characteristics of geographic data, data types, database concepts, and operations and functionality. Also includes hardware, software, implementation, legal issues, and the future of geographic information systems.

**Prerequisite(s):** ANT/ARC/GEO/GIS 265 or concurrent enrollment.

*Information: Prerequisite may be waived with consent of instructor. Basic computer skills are required before enrolling in this course.*

*Same as ARC/GEO/GIS 267.*

Offered: Fall.

**ANT 275 Archaeological Excavation I**

4 cr. hrs. 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: Fall.

**ANT 276 Archaeological Surveying I**

4 cr. hrs. 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: Spring.

**ANT 277 Archaeological Excavation II**

4 cr. hrs. 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: Fall.

**ANT 278 Archaeological Surveying II**

4 cr. hrs. 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, 265 (or concurrent enrollment), 276 and GLG 101.

*Information: Same as ARC 278. Consult instructor for alternative prerequisite(s).*

Offered: May not be offered this year, check class schedule.

**ANT 281 Global Positioning Systems**

1 cr. hrs. 3 periods (3 lab)

Introduction to the technical use of Global Positioning Systems (GPS) receivers in a field setting. Includes review of GPS vocabulary and concepts, comprehensive initialization of handheld GPS receivers, data collection with handheld GPS, the use of mapping software with data from handheld GPS, concepts of differential GPS, operation of and field data collection with static and RTK precision GPS, use of software packages for differential correction and map production. Also includes using equipment, resources and facilities of the Archaeology Center.

**Prerequisite(s):** ANT/ARC/GIS 181.

*Information: Prerequisite may be waived with equivalent experience or consent of instructor. Same as ARC/GIS 281.*

Offered: Spring.

**ANT 284 Computer Cartography and CAD**

3 cr. hrs. 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/GEO/GIS 265 or concurrent enrollment and CSA 101.

*Information: Same as ARC/GEO/GIS 284.*

Offered: May not be offered this year, check class schedule.

**ANT 286 Electronic and Digital Field Mapping**

4 cr. hrs. 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):** ANT/ARC 265 and ANT/ARC/GIS 281.

**Recommendation:** Consult instructor for alternative prerequisite(s).

*Information:* Same as ARC/GIS 286.

Offered: Spring.

**ANT 295 Field Projects**

.5-4 cr. hrs. 1.5-12 periods (1.5-12 lab)

Participation in a field project in one of the subfields of anthropology.

*Information:* Same as ARC 295.

*Information:* 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**

.5-4 cr. hrs. 1.5-12 periods (1.5-12 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.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Information:* Same as ARC 296.

Offered: May not be offered this year, check class schedule.

## Arabic

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**ARB 101 Elementary Modern Standard Arabic I**

5 cr. hrs. 5 periods (5 lec.)

Introduction to modern standard Arabic language. Includes modern standard Arabic alphabet, grammatical structures, interpersonal transactions, and cultural contexts. Also includes speaking, listening, reading, and writing of Arabic.

Offered: Fall, Spring.

**ARB 102 Elementary Modern Standard Arabic II**

5 cr. hrs. 5 periods (5 lec.)

Continuation of ARB 101. Includes additional uses of Modern Standard Arabic alphabet, grammatical structures interpersonal transactions and protocols, and cultural contexts. Also includes additional speaking, listening, reading, and writing of Arabic.

**Prerequisite(s):** ARB 101.

Offered: May not be offered this year, check class schedule.

**ARB 106 Arabic: Beginning Conversation**

4 cr. hrs. 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: Spring.

**ARB 201 Intermediate Modern Standard Arabic I**

5 cr. hrs. 5 periods (5 lec.)

Continuation of ARB 102. Includes intermediate uses of Modern Standard Arabic alphabet, grammatical structures, interpersonal transactions and protocols, and cultural contexts. Also includes intermediate speaking, listening, reading, and writing in Arabic.

**Prerequisite(s):** ARB 102.

Offered: May not be offered this year, check class schedule.

**ARB 202 Intermediate Modern Standard Arabic II**

5 cr. hrs. 5 periods (5 lec.)

Continuation of ARB 201. Includes intermediate complex uses of Modern Standard Arabic alphabet, complex grammatical structures, complex interpersonal transactions and protocols, and complex cultural contexts. Also includes intermediate complex speaking, listening, reading, and writing of Arabic.

**Prerequisite(s):** ARB 201.

Offered: May not be offered this year, check class schedule.

## Archaeology

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**ARC 060 Artifacts and Sites of Tucson**

.5 cr. hrs. .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 062 Stone Tool Making**

.5 cr. hrs. .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: Fall, Spring.

**ARC 075 Field Archaeology**

4 cr. hrs. 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 cr. hrs. .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 cr. hrs. 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 cr. hrs. 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**

1 cr. hrs. 2 periods (.5 lec., 1.5 lab)

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, flaked stone technology, ground stone tool identification, animal bone, marine shell artifacts and historical artifacts.

*Information: Same as ANT 180.*

Offered: Spring.

**ARC 181 Global Positioning Systems Basics**

1 cr. hrs. 1 periods (1 lec.)

Introduction to the use of Global Positioning Systems (GPS) receivers in a field setting for non-technical applications. Includes GPS vocabulary, operation, field data collection and data transfer. Also includes using equipment, resources and facilities of the Archaeology Centre.

*Information: Same as ANT/GIS 181.*

Offered: Fall.

**ARC 204IN Human Evolution: Ape Men, Cave Women and Missing Links**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Study of human evolution and variation. Includes fossil evidence, environmental and cultural change, primate anatomy and behavior, human genetics, human biology and biocultural interactions. Also includes the use of museum collections, equipment, resources, and facilities of the Archaeology Centre.

*Information: Same as ANT 204IN.*

Offered: Spring.

**ARC 205 Introduction to Southwestern Prehistory**

3 cr. hrs. 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 cr. hrs. 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; overview of theory in archaeological method and techniques of archaeological excavation; remote sensing, surveying, and mapping; dating methods; archaeological analysis and classification; interpretation of archaeological data; and the role of archaeology in cultural heritage protection and management. Also includes using museum collections, equipment, resources, and facilities of the Archaeology Centre.

**Prerequisite(s):** ANT/ARC 101 or 110 or 205.

*Information: Prerequisite(s) may be waived with consent of instructor.*

*Information: Same as ANT 225.*

Offered: Fall.

**ARC 250 Archaeology Laboratory**

4 cr. hrs. 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, 180.

*Information: Prerequisites may be waived with consent of instructor.*

*Information: Same as ANT 250.*

Offered: Spring.

**ARC 261 Biological Anthropology**

3 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor.*

*Information: Same as ANT 261.*

*Offered: May not be offered this year, check class schedule.*

**ARC 265 Mapping Concepts**

1 cr. hrs. 1 periods (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/GIS 265.*

*Offered: Fall.*

**ARC 267 Introduction to Geographic Information Systems**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the technology of geographic information systems (GIS). Includes the evolution of the technology, applications, benefits and costs, characteristics of geographic data, data types, database concepts, and operations and functionality. Also includes hardware, software, implementation, legal issues, and the future of geographic information systems.

**Prerequisites(s):** ANT/ARC/GEO/GIS 265 or concurrent enrollment.

*Information: Prerequisite may be waived with consent of instructor. Basic computer skills are required before enrolling in this course. Same as ANT/GEO/GIS 267.*

*Offered: Fall.*

**ARC 275 Archaeological Excavation I**

4 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 ANT 277.*

*Offered: Fall.*

**ARC 278 Archaeological Surveying II**

4 cr. hrs. 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, 265 (or concurrent enrollment), 276 and GLG 101.

*Information: Same as ANT 278. Consult instructor for alternative prerequisite(s).*

Offered: Spring.

**ARC 281 Global Positioning Systems**

1 cr. hrs. 3 periods (3 lab)

Introduction to the technical use of Global Positioning Systems (GPS) receivers in a field setting. Includes review of GPS vocabulary and concepts, comprehensive initialization of handheld GPS receivers, data collection with handheld GPS, the use of mapping software with data from handheld GPS, concepts of differential GPS, operation of and field data collection with static and RTK precision GPS, use of software packages for differential correction and map production. Also includes using equipment, resources and facilities of the Archaeology Center. Prerequisite(s): ANT/ARC/GIS 181.

*Information: Prerequisite(s) may be waived with equivalent experience or consent of instructor. Same as ANT/GIS 281.*

Offered: Spring.

**ARC 284 Computer Cartography and CAD**

3 cr. hrs. 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/GEO/GIS 265 or concurrent enrollment, and CSA 101.

*Information: Same as ANT/GEO/GIS 284.*

Offered: May not be offered this year, check class schedule.

**ARC 286 Electronic and Digital Field Mapping**

4 cr. hrs. 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):** ANT/ARC 265 and ANT/ARC/GIS 281.

**Recommendation:** Consult instructor for alternative prerequisite(s).

*Information: Same as ANT/GIS 286.*

Offered: Spring.

**ARC 295 Field Projects**

.5-4 cr. hrs. 1.5-12 periods (1.5-12 lab)

Participation in a field project in one of the subfields of anthropology.

*Information: Same as ANT 295.*

*Information: 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**

.5-4 cr. hrs. 1.5-12 periods (1.5-12 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.*

*Information: May be taken three times for a maximum of twelve credit hours.*

*Information: Same as ANT 296.*

Offered: May not be offered this year, check class schedule.



For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### ART 100 Basic Design

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the elements and principles of visual design. Includes identifying and interpreting creative problems; emphasizing art and design skills; writing reviews of gallery visits/museum visits/artist lecturers; articulating and demonstrating progressive skills in their own work; participating in individual and group critiques; and relating their work on a conceptual, interpersonal and global level.

Offered: Fall, Spring, Summer.

### ART 105 Exploring Art and Visual Culture

3 cr. hrs. 3 periods (3 lec.)

Exploration of historical and contemporary art and the visual image within the context of culture. Includes selective perception; formal analysis; materials and techniques; art in a historical framework; visual culture; meaning and value in art and visual culture; and high and low culture art. Also includes contemporary issues; traditional and contemporary themes in art; museums, galleries, and public spaces; and process, form, and content in making art.

Offered: Fall, Spring, Summer.

### ART 106 Survey of Painting Materials and Techniques

3 cr. hrs. 5 periods (2 lec., 3 lab)

Technical and theoretical investigation of the most prominent painting methods from Ancient Greece to the present. Includes materials used in painting, the fresco and encaustic techniques, the glair technique, the egg tempera technique, the indirect and direct oil techniques, and the watercolor technique.

Offered: Fall, Spring.

### ART 109 Watercolor Painting

3 cr. hrs. 3 periods (3 lec.)

Introductory course in watercolor painting that explores basic materials, techniques, and development of students' personal style. Includes the use of washes, wet-in-wet, dry brush, color mixing, and value. Also includes design, principles of composition, space, and form.

Offered: May not be offered this year, check class schedule.

### ART 110 Drawing I SUN# ART 1111

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to drawing. Includes drawing and design problems, varied use of materials and techniques, perceptual skills, critique processes with critical thinking for personal growth, analysis of professional art events or galleries, and portfolio creation.

**Prerequisite(s):** ART 100.

*Information: Prerequisites may be waived with consent of instructor.*

Offered: Fall, Spring, Summer.

### ART 115 Color and Composition

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to recognizing color principles and relationships and analyzing duplicating colors. Includes value scale, color wheel, intensity, color relationships, transparency, dimension, luminosity, and creative projects.

**Recommendation:** Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring.

### ART 120 Sculptural Design SUN# ART 1115

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to sculpture and three-dimensional design. Includes concepts and approaches, content development, visual literacy, critical analysis, art elements, exploration of a range of media and techniques, and basic sculptural design lab procedures.

**Recommendation:** Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring.

**ART 121 Figure Sculpture**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Beginning modeling techniques using clay and other media working partly from anatomical references and partly from the model. Includes visual literacy and critical analysis, range of media, approaches to figurative sculpture, technical understanding in working with human anatomy, content, and safety.

**Recommendation:** Completion of ART 120 and 213 before enrolling in this course.

*Information:* There may be additional supply costs in addition to course fees.

Offered: May not be offered this year, check class schedule.

**ART 123 Lost Wax Sculpture Casting**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to metal casting of sculpture with emphasis on the ceramic shell method of moldmaking, historical and contemporary issues in cast sculpture, and individual artistic expression. Includes major techniques, health and safety issues, verbalization of visual perceptions, project variations, and content.

**Recommendation:** Completion of ART 100 before enrolling in this course.

Offered: Fall, Spring.

**ART 128 Digital Photography I**

4 cr. hrs. 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.

*Information:* 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. 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, Summer.

**ART 130 Art and Culture: Prehistoric through Gothic SUN# ART 1101**

3 cr. hrs. 3 periods (3 lec.)

A survey of the development of art and architecture in Western Civilization from prehistoric through Gothic art with the inclusion of a global perspective. Includes identification and interpretation of cultural and stylistic characteristics, contextual functions and purposes of works of art, influences of cultural values on the production of art, art historical terminology, exemplars of non-Western culture, and critical methodologies.

Offered: Fall, Spring, Summer.

**ART 131 Art and Culture: Late Gothic through Modern Periods SUN# ART 1102**

3 cr. hrs. 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 133 Art in America**

3 cr. hrs. 3 periods (3 lec.)

Introductory survey of American art from the colonial period to the present as well as European and global influences. Includes characteristics of American art, cultural conditions surrounding historical periods, influences on art production, surrounding cultural production, unique contributions of diverse cultural groups, and critical methodologies.

Offered: Spring.

**ART 135 Pre-Columbian Art**

3 cr. hrs. 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.

Offered: May not be offered this year, check class schedule.

**ART 136 Body and Art**

3 cr. hrs. 3 periods (3 lec.)

A visual cultural exploration of how humans utilize the body as a vehicle for communicating and displaying personal and group identities. Includes anthropological and art historical study of types of permanent and temporary body decorations, masks, and performance; and the ethical issues surrounding the study and use of imagery within and between cultures. Also includes the conceptual examination of global examples and an overview of practical projects to demonstrate the continued vitality of each mode of expression.

*Information: Same as ANT 136.*

Offered: Fall, Spring.

**ART 140 Photography I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to black and white photography as an art form with an emphasis on fundamental technique of the camera and wet darkroom. Includes manual camera competencies, manual film development, basic darkroom procedures, portfolio building, visual literacy and critical analysis, and the role of photography.

**Recommendation:** *Completion of ART 100 before enrolling in this course.*

Offered: Fall, Spring.

**ART 141 Photography II**

3 cr. hrs. 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 146 Lighting for Photography I**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Introduction to creative professional lighting concepts and techniques for commercial and fine art photography. Includes lighting and studio equipment, light qualities, lighting for form, lighting for surface qualities, still- life photography, portrait photography, image composition, critical analysis, and portfolio.

**Prerequisite(s):** ART/DAR 128.

*Information: Students are strongly recommended to own or have access to a digital camera with manual exposure control and a computer with image processing software. Professional quality cameras, computers and software, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. Same as DAR 146.*

Offered: Fall.

**ART 147 Alternative Processes in Photography**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Designed for the advanced image maker interested in expanding knowledge of alternative photographic processes. Includes enlarging negatives for contact printing, nineteenth century processes, twentieth century processes, darkroom materials, and artwork presentation. Prerequisite(s): ART 128 or 140.

Offered: Fall, Spring.

**ART 160 Ceramics I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to ceramics. Includes beginning handbuilding techniques and methods of fabrication, wheel throwing and trimming, projects involving formal elements, beginning ceramic techniques, reduction firing, raku firing, ceramic artist research, discussion, and exploration topics.

**Recommendation:** *Completion of ART 100 before enrolling in this course or concurrent enrollment.*

Offered: Fall, Spring, Summer.

**ART 170 Metalwork I: Jewelry**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Exploration of the basic techniques and design approaches used in the fabrication of jewelry and other metalwork. Includes information and background on historical and contemporary metalwork and jewelry, and techniques and processes of jewelry and metalwork.

**Prerequisite(s):** ART 100.

Offered: Fall, Spring, Summer.

**ART 175 Ferrous Metalwork: Blacksmithing, Tool Making/Knife Making**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the materials, design, techniques, safety habits, and methods used in ferrous metalwork. Includes basic tools, processes, and techniques of blacksmithing; layout and design of projects; metals lab procedures; metallurgical theory; metalworking skills and concepts for tool making; tool design; steps in blade making; knife handle forming; and forging methods.

**Recommendation:** Completion of ART 100 is recommended before enrolling in this course.

Offered: Fall, Spring.

**ART 180 Weaving I: Four-Harness Loom**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Weaving on a four-harness loom. Includes projects involving color, texture, patterns, and the use of tabby, twill, tubular, textural, and tapestry weaves in the creation of fiber art and creative and functional objects.

**Recommendation:** Completion of ART 100 before enrolling in this course.

Offered: Fall.

**ART 181 Mixed Media Fibers**

3 cr. hrs. 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, which are used to create artistic compositions.

**Recommendation:** Completion of ART 100 before enrolling in this course.

Offered: Spring.

**ART 210 Drawing II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 110. Includes strengthening of drawing and critical thinking skills. Also includes intermediate drawing and design problems; intermediate use of materials and techniques; perceptual skill and personal development; critique process; engagement and analysis of professional art events or galleries; and portfolio creation.

**Prerequisite(s):** ART 110.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**ART 212 Printmaking I**

3 cr. hrs. 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 cr. hrs. 5 periods (2 lec., 3 lab)

Drawing of human figures using the two-dimension concept as a graphic vehicle of expression. Includes gesture and contour drawing, varied time length poses, drawing problems, variety of materials, and individual and group critiques of work.

**Prerequisite(s):** ART 100.

**Recommendation:** Completion of ART 110 before enrolling in this course.

Offered: Fall, Spring.

**ART 214 Printmaking II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 212. Includes advanced problems in aesthetics and techniques of intaglio etching, relief printing, monotype techniques, and alternative and non-traditional approaches to printmaking.

**Prerequisite(s):** ART 212.

Offered: Fall, Spring.

**ART 215 Painting I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the fundamentals of oil painting. Includes basic painting techniques and processes, manipulation of compositional elements and formal and contemporary pictorial organization in various genres, surface preparation, personal direction and artistic expression, and health and safety in the painting studio.

**Prerequisite(s):** ART 110.

**Recommendation:** Completion of ART 115 before enrolling in this course.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**ART 216 Screenprinting I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to screenprinting using water base and inks. Includes screen construction, direct stencil techniques, photographic techniques, one-color printing, multicolor printing and registration, overview of the types of printing papers, and final presentation.

**Prerequisite(s):** ART 100.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**ART 217 Painting II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 215. Includes intermediate development and reinforcement of basic oil painting techniques and processes, development of compositional elements and formal pictorial organization, manipulation of pictorial elements, artistic expression, and health and safety in the painting studio.

**Prerequisites(s):** ART 215.

**Recommendation:** Completion of ART 115 before enrolling in this course.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**ART 218 Screenprinting II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 216. Includes equipment orientation, advanced stencil-making techniques, printing, and types of printing papers.

**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 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 214. Includes experimentation with intaglio, multi-color possibilities with non-traditional compositions, relief and intaglio multi-processes, monoprint with multiple plates, and critical analysis.

**Prerequisite(s):** ART 214.

Offered: Spring.

**ART 220 Sculpture**

3 cr. hrs. 6 periods (3 lec., 3 lab)

Exploration of methods, materials, and content used in sculpture. Includes art elements, art principles, media and technique, sculpture lab procedures, content issues, projects, and visual literacy and critical analysis.

*Information: ART 120 or consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring.

**ART 230 History of Photography**

3 cr. hrs. 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 cr. hrs. 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.

**Information:** Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. 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: Fall, Spring.

**ART 233 Digital Photography III**

4 cr. hrs. 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.

**Information:** Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments.

**Information:** There may be additional supply costs in addition to course fees.

**Information:** The prerequisite(s) may be waived for basic skills in digital photography. See the ART/DAR instructor for prerequisite information.

Offered: Spring.

**ART 246 Lighting for Photography II**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of ART/DAR 146. Includes lighting and equipment for studio and location, advanced lighting qualities and techniques, photographing with mixed light sources, lighting for mood and environment, set design and construction, photographing individuals and groups of people, photographing on location, photographing for montage images, advanced image composition, critical analysis, business practices, and portfolios.

**Prerequisite(s):** ART/DAR 146.

**Information:** Students are strongly recommended to own or have access to a digital camera with manual exposure control and a computer with image processing software. Professional quality cameras, computers and software, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. Same as DAR 246.

Offered: Spring.

**ART 248 Individual Projects in Photography**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Individual projects in photography at the advanced level. Includes defining a body of work, applying visual presentation formats, editioning a print, and equipment and technical photographic skills.

**Information:** Consent of instructor is required before enrolling in this course.

**Information:** May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 249 Artists' Books**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the basics of the various styles of bookmaking. Includes historical and contemporary practices, bookbinding techniques, book styles, materials, text and image, unique and multiple edition book runs, and critique of artists' books.

**Recommendation:** Completion of ART 100 before enrolling in this course.

Offered: Spring.

**ART 250 Gallery and Museum Practices**

3 cr. hrs. 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 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 160. Includes intermediate handbuilding techniques and methods of fabrication, wheel throwing and trimming, projects involving formal elements, intermediate ceramic techniques, reduction firing, raku firing, plaster press mold, ceramic artist research, and discussion and exploration topics.

**Prerequisite(s):** ART 160.

Offered: Fall, Spring.

**ART 261 Ceramics III**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 260. Includes intermediate and advanced handbuilding techniques and methods of fabrication, wheel throwing and trimming, projects involving formal elements, intermediate and advanced ceramic techniques, reduction firing, raku firing, plaster press mold, ceramic artist research, and discussion and exploration topics.

**Prerequisite(s):** ART 260.

Offered: Fall, Spring.

**ART 262 Ceramics IV**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 261. Includes advanced handbuilding techniques and methods of fabrication, wheel throwing and trimming, projects involving formal elements, advanced ceramic techniques, reduction firing, raku firing, plaster press mold, ceramic artist research, and discussion and exploration topics.

**Prerequisite(s):** ART 261.

Offered: Spring.

**ART 265 Furnace Glassblowing I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the elements, tools, and basic principles of furnace glassblowing. Includes the glassblowing studio and cold working shop orientation, paperweights and solid glass forms, the blowpipe, cold working glass, a final project, and visual literacy and critical analysis.

**Prerequisite(s):** ART 100.

*Information: This course requires a special fee through Sonoran Glass School. Please contact the Arts, Communications and Humanities Division at the West Campus (206-6974) for further information.*

Offered: Fall, Spring.

**ART 266 Furnace Glassblowing II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 265. Includes a review of the glassblowing studio and cold working shop orientation, hollow and solid glass forms, the blowpipe, cold working glass, a final project, and visual literacy and critical analysis.

**Prerequisite(s):** ART 265.

*Information: This course requires a special fee through Sonoran Glass School. Please contact the Arts, Communications and Humanities Division at the West Campus (206-6974) for further information.*

Offered: May not be offered this year, check class schedule.

**ART 270 Metalwork II: Jewelry**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 170. Includes design approaches to jewelry making, review of various intermediate techniques, functional considerations involved in jewelry design, and safety and health issues.

**Prerequisite(s):** ART 170.

Offered: Spring.

**ART 271 Metalwork II: Smithing and Casting**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Design and production of jewelry and metal objects. Includes design approaches to metalwork, review or various intermediate techniques, functional considerations involved in smithing and casting, and safety and health issues.

**Prerequisite(s):** ART 170.

Offered: May not be offered this year, check class schedule.

**ART 280 Weaving II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of ART 180. Includes study and exercises using four-eight harness pattern weaves and advanced creative projects. 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 288 Portfolio Preparation**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Overview of the development and marketing of a professional portfolio. Includes definition and evaluation of coherent bodies of work, documentation of work, preparation of portfolio production, production of a portfolio, parts of a portfolio, and marketing.

**Recommendation:** For advanced students who have completed coursework in their specific areas.

*Information:* Portfolio concentrations will be determined in a conference between student and instructor.

*Information:* Same as FDC 288.

Offered: Fall.

**ART 29611 Independent Study in ART: Art History**

3 cr. hrs. 5 periods (2 lec., 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.

*Information:* May be taken four times for a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**ART 29612 Independent Study in ART: Ceramics**

3 cr. hrs. 5 periods (2 lec., 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.

*Information:* May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**ART 29613 Independent Study in ART: Metals**

3 cr. hrs. 5 periods (2 lec., 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.

*Information:* May be taken four times for a maximum of twelve credit hours.

Offered: May not be offered this year, check class schedule.

**ART 29614 Independent Study in ART: Painting, Drawing, and Design**

3 cr. hrs. 5 periods (2 lec., 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.

*Information:* May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.



**ART 29615 Independent Study in ART: Photography**

3 cr. hrs. 5 periods (2 lec., 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.*

*Information: May be taken four times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

**ART 29616 Independent Study in ART: Printmaking**

3 cr. hrs. 5 periods (2 lec., 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.*

*Information: May be taken four times for a maximum of twelve credit hours.*

Offered: Fall.

**ART 29617 Independent Study in ART: Sculpture**

3 cr. hrs. 5 periods (2 lec., 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.*

*Information: May be taken four times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

**ART 29618 Independent Study in ART: Fibers**

3 cr. hrs. 5 periods (2 lec., 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.*

*Information: May be taken four times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

**ART 29619 Independent Study in ART: Glass**

3 cr. hrs. 5 periods (2 lec., 3 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 twelve credit hours. This course requires a substantial special fee through Sonoran Glass Art Academy. Please contact the Arts, Communications and Humanities Division at the West Campus (206-6974) for further information.*

Offered: May not be offered this year, check class schedule.

## Art For Personal Development

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**APD 050 Photography**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Introduction to film and digital photography for the hobbyist/enthusiast. Includes history of still photography, introduction to the camera: digital or film, principles of exposure, manipulating light, and darkroom orientation.

*Information: Students will supply their own camera and necessary materials. There are no additional course fees.*

Offered: May not be offered this year, check class schedule.

**APD 051 Mariachi Performance**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Introduction to mariachi music. Includes playing and transposing songs and melodies, as well as learning the basics of ensemble singing. Also includes the care and maintenance of various mariachi musical instruments.

Offered: May not be offered this year, check class schedule.

**APD 062 Acrylic and Oil Painting**

2 cr. hrs. 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: May not be offered this year, check class schedule.

**APD 065 Watercolor**

2 cr. hrs. 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: May not be offered this year, check class schedule.

**APD 068 Watercolor IV**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Continuation of APD 067. Includes advanced watercolor applications and advanced experimentation.

Offered: May not be offered this year, check class schedule.

**APD 069 Abstract Painting**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Introduction to abstract painting. Includes painting preparation, composing and building paintings, and developing a personal vision. A series of painting projects will lead students through the process of loosening the hold on realism and discovering new ways to evoke feeling through art.

Offered: May not be offered this year, check class schedule.

## Astronomy

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**AST 101 Solar System**

3 cr. hrs. 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 of pseudoscience.

**Corequisite(s):** AST 101LB

Offered: Fall, Spring.

**AST 101IN Solar System**

4 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 measuremental 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 cr. hrs. 3 periods (3 lab)

Laboratory for AST 102. Includes in-class measuremental 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 105IN Life in the Universe**

4 cr. hrs. 6 periods (3 lec., 3 lab)

The science of astronomy 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 of life on Earth, life on other solar system planets, and life around other stars. Also includes observations, experiments, image analysis, scientific and photogeology laboratory exercise, 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 296LB Independent Study in Astronomy**

1-4 cr. hrs. 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.*

*Information: May be taken three times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

## Automotive Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**AUT 100 Small Engine Troubleshooting and Repair**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Small Engine Troubleshooting and Repair Principles and procedures for overhauling, troubleshooting and repairing small engines. Includes 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 cr. hrs. 7 periods (1 lec., 6 lab)

Automotive Maintenance Techniques of routine vehicle maintenance. Includes customer vehicle identification and handling, new vehicle pre-delivery inspection and preparation, safety inspection, lubrication tasks, light line tasks, and fluid flushing.

Offered: Fall, Spring, Summer.

**AUT 105 Light Line Maintenance**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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.

**AUT 124 Automotive Diesel Engine Tune-Up**

3 cr. hrs. 7 periods (1 lec., 6 lab)

Diagnosis, repair, and maintenance of mechanical and electronic diesel engine systems. Includes personal and environmental safety, general engine controls, computerized engine controls, electronic diesel injection, air and fuel induction systems, emissions control systems and electronic communication systems.

Offered: Fall, Spring, Summer.

**AUT 126 Engine Performance and Driveability Troubleshooting**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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.

**AUT 133 Automatic Transmission/Transaxle Service and Rebuilding**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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. Also includes wheel and tire diagnosis and repair.

Offered: Fall, Spring, Summer.

**AUT 140 Automotive Brakes Diagnosis and Repair**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 prefix 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.

## Aviation Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**AVM 101 Structural Repair I**

4 cr. hrs. 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: Fall.

**AVM 102 Structural Repair II**

4 cr. hrs. 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: Fall.

**AVM 105 Aircraft Sheetmetal Repair**

5 cr. hrs. 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: Fall, Spring.

**AVM 109 English for Aviation Technology**

3 cr. hrs. 3 periods (3 lab)

Aviation Technology related English for native and non-native speakers of English with high-intermediate language skills. Includes language skills needed for participation in Aviation Technology coursework, class activities, licensing exams, and workplace situations. Develops active use of field-related terms and concepts through contextualized practice. Also includes successful job-search skills, communication with supervisors and co-workers, employee rights and responsibilities, problem-solving strategies, and understanding the culture of the American Aviation Technology workplace.

**Prerequisite(s):** Placement into REA 091 or better.

**Recommendation:** Concurrent enrollment in ESL 088 or REA 091.

Offered: Fall, Spring, Summer.

**AVM 110 Aircraft Blueprint Reading**

3 cr. hrs. 3 periods (3 lec.)

Theory and application of aircraft blueprint reading. Includes types of aircraft drawings, measuring tools, drawing and layout 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 cr. hrs. 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, Summer.

**AVM 130 Aircraft Composite Repair**

5 cr. hrs. 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: Fall.

**AVM 150 Structural Repair III**

4 cr. hrs. 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 cr. hrs. 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 165 Aircraft Hardware and Fasteners**

3 cr. hrs. 3 periods (3 lec.)

Aircraft structural repair hardware and fasteners. Includes specifications and standards, types, control linkages, tubing, hose and packings.

Offered: Fall.

**AVM 202 Aviation Safety**

3 cr. hrs. 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, Summer.

**AVM 203 Structural Repair V**

4 cr. hrs. 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.

Offered: Fall.

**AVM 204 Structural Repair VI**

4 cr. hrs. 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: Fall.

**AVM 205 Motion Dynamics**

3 cr. hrs. 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, Summer.

**AVM 206 Materials and Processes**

3 cr. hrs. 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 Summer.

**AVM 207 Weight and Balance**

3 cr. hrs. 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.

**Prerequisite(s):** GTM 105.

Offered: Fall, Spring, Summer.

**AVM 208 Basic Electricity**

5 cr. hrs. 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, Kirchoff'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, Summer.

**AVM 209 Intermediate Electricity**

5 cr. hrs. 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: Fall.

**AVM 210 Advanced Composite Aircraft Repair I**

4 cr. hrs. 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.

**Corequisite(s):** AVM 210LB

Offered: Spring.

**AVM 210LB Advanced Composite Aircraft Repair I Lab**

1 cr. hrs. 3 periods (3 lab)

Laboratory for AVM 210. Includes theory and application of composite materials utilized in aircraft construction. Also 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.

**Corequisite(s):** AVM 210

Offered: Spring.

**AVM 211 Alternate Structures**

5 cr. hrs. 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: Fall.

**AVM 218 Airframe Rigging and Landing Gear Systems**

3 cr. hrs. 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: Fall, Spring.

**AVM 219 Airframe Inspections**

3 cr. hrs. 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.

**Prerequisite(s):** AVM 114.

Offered: Fall, Spring.

**AVM 223 Hydraulic and Pneumatic Power**

3 cr. hrs. 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: Fall.

**AVM 224 Atmospheric Controls**

3 cr. hrs. 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: Fall.



**AVM 225 Fire, Ice, Rain, and Fuel Systems**

3 cr. hrs. 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: Fall.

**AVM 226 Engine Electrical**

5 cr. hrs. 8 periods (2 lec., 6 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.

**Prerequisite(s):** AVM 208.

Offered: Fall.

**AVM 227 Engine Air Flow Systems**

3 cr. hrs. 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 cr. hrs. 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, Spring.

**AVM 229 Engine Support Systems**

3 cr. hrs. 5 periods (1 lec., 4 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: Fall, Spring.

**AVM 231 Engine Principles, Monitoring and Inspection**

5 cr. hrs. 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 cr. hrs. 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 and 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 cr. hrs. 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, Spring.

**AVM 234 Engine Fuel Metering and Operation**

5 cr. hrs. 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: Fall, Spring.

**AVM 260 Advanced Composite Aircraft Repair II**

1 cr. hrs. 1 periods (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 210/210LB.

**Corequisite(s):** AVM 260LB

Offered: Spring.

**AVM 260IN Advanced Composite Aircraft Repair II**

4 cr. hrs. 10 periods (1 lec., 9 lab)

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 210/210LB.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring, Summer.

**AVM 260LB Advanced Composite Aircraft Repair II Lab**

3 cr. hrs. 9 periods (9 lab)

This is the Lab portion of AVM 260.

**Prerequisite(s):** AVM 210/210LB.

**Corequisite(s):** AVM 260

Offered: Spring.

## Avionics Technician Training

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**ATT 101 Avionics Familiarization**

3 cr. hrs. 3 periods (3 lec.)

Overview of the evolution of modern avionics. Includes the role and responsibilities of the avionics technician; the classification and requirements of airports, airspace, and atmospheric environments; and types of avionics equipment used today. Also includes instrument layouts, crew cabin layouts, and advisory circulars and regulations pertaining to operation and management.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 102 Aircraft Electrical Systems**

3 cr. hrs. 3 periods (3 lec.)

Overview of aircraft electrical systems, including AC and DC power generation and distribution for small general aviation (GA), corporate, and commercial airline transport aircraft. Includes electrical schematics, manuals, and diagrams. Also includes aircraft system power requirements for avionics; fuel and flight management; cabin atmospheric control; landing gear and flight controls; load; warning systems; cabin lighting; and entertainment systems.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 103 Basics of Avionics Installation**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Concepts, techniques, and skills used to install electronic and avionics equipment. Includes avionics support structure installation and fabrication; instrument mounting; terminal installation; cutting, sizing, marking, bundling, and anchoring techniques and practices; handling precautions for sensitive devices; and selecting proper equipment and tools. Also includes a review of electrical equipment bays, wiring diagrams, installation drawings, circuit protection devices, lighting processes, and regulatory requirements.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 104 Operating Systems I, Communication and Navigation**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Topical discussion on typical communication and navigation systems, schematic usage, special tooling and equipment, switching, circuit protection, instrument panel features. Includes standard wiring practices of single and multiple flight instrumentation sources, location reporting equipment, as well as essential standard avionic basic flight devices.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 105 NCATT-AET Exam Preparation**

3 cr. hrs. 3 periods (3 lec.)

Preparation for the National Center for Aircraft Technician Training-Aircraft Electronics Technician (NCATT-AET) examination. Includes general electrical theories and principals. Also includes safety, terminology, standard operating systems, standard practices, electrical theories, and common hand tooling selection.

Offered: Fall, Spring, Summer.

**ATT 106 FCC Exam Preparation (PG)**

3 cr. hrs. 3 periods (3 lec.)

Preparation for the Federal Communications Commission (FCC) license examination. Includes general electrical theories, principals, safety, hazards, regulations, and terminology. Also includes additional exposure to outmoded systems and materials will be reviewed to compliment the test questions.

Offered: Fall, Spring, Summer.

**ATT 200 Communication and Navigation Installation**

5 cr. hrs. 7 periods (3 lec., 4 lab)

Installation of typical communication and navigation systems. Includes schematics; special tooling and equipment; switching; circuit protection; and instrument panel modification and installation features. Also includes standard wiring and installation practices for single and multiple flight instrumentation sources, location reporting equipment, and essential standard avionic flight devices.

**Prerequisite(s):** ATT 103 and 104.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 201 Operating Systems II, GPS Navigation and Auto Pilot**

3 cr. hrs. 3 periods (3 lec.)

Principles of operation and usage by flight crews demonstrated with flight simulators. Includes installation planning for electrical system requirements, typical mounting, wiring methods, connectors and antenna installation. Also includes pre- and post-installation verification of system integration, functional testing; troubleshooting on Global Positioning Systems (GPS) and Auto Pilot System

**Prerequisite(s):** ATT 104 and 200.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 202 GPS Navigation and Auto Pilot Installation**

5 cr. hrs. 7 periods (3 lec., 4 lab)

Principles of operation and usage by flight crews (flight simulator). Includes installation planning for electrical system requirements, typical mounting, wiring methods, connectors and antenna installation. Includes pre- and post- installation verification of system integration, functional testing, troubleshooting on Global Positioning Systems (GPS) and Auto Pilot Systems. Also includes an introduction to the installation of engine indicating instruments and their relationship to the instrument console.

**Prerequisite(s):** ATT 104 and 201.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 203 Avionics Test Equipment**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Overview of the evolution of the modern avionics systems, test equipment, operation of and training for test equipment. Includes functional testing of pitot static, transponder and altitude reporting units, Very High Frequency Omni-directional Range (VOR), Global Positioning System (GPS), and compass navigation devices installed in aircraft or functioning mockups. Also includes special tooling and test apparatuses, the handling of aircraft, safety to personnel and equipment undergoing testing.

**Prerequisite(s):** ATT 104 and 200.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Fall.

**ATT 204 Glass Cockpit Installer**

5 cr. hrs. 7 periods (3 lec., 4 lab)

Installation of glass cockpit systems. Includes panel installation, functional checks, troubleshooting, installation and handling practices for Multifunction Display Units (MFD), Primary Flight Displays (PFD), and Engine Indicating and Crew Alerting Systems (EICAS). Also includes glass cockpit upgrade training, to include the removal of older "steam" gauges and various other indication instruments and replace them with modern glass cockpit indicating systems.

**Prerequisite(s):** ATT 103 and 200.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Spring.

**ATT 205 Operating Systems III, Infrared and Weather Radar**

3 cr. hrs. 3 periods (3 lec.)

Principles of operation and usage by flight crews (demonstrated through a flight simulator). Includes installation planning, electrical system requirements, typical mounting, wiring methods, connectors and antenna installation. Includes system integration, functional testing of Enhanced Vision Systems (EVS), Weather (Wx) Radar, and radio altimeter systems. Also includes the coverage of the operation, installation, troubleshooting and safety training of EVS systems.

**Prerequisite(s):** ATT 101 and 102.

*Information: Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.*

Offered: Spring.

**ATT 206 Infrared and Weather Radar Installation**

5 cr. hrs. 7 periods (3 lec., 4 lab)

Installation of typical Weather Radar, Radio Altimeter Systems and Enhanced Vision Systems. Includes schematic usage, special tooling and equipment, switching, circuit protection, instrument panel features for modification for installation. Includes standard wiring and installation practices of stand alone and integrated avionic devices and multifunctional display equipment. Also includes a mandatory requirement that all installed equipment be functional tested after installation of equipment.

**Prerequisite(s):** ATT 103 and 205.

*Information:* Includes an emphasis on one-on-one system operation, testing, and troubleshooting techniques, from technicians that are trained on the aircraft systems. Additional self-paced independent course study materials are required for non-certified Airframe and Powerplant students.

Offered: Spring.

**ATT 209 NCATT - AET Additional Ratings Exam Preparation**

3 cr. hrs. 3 periods (3 lec.)

Preparation for the National Center for Aircraft Technician Training-Aircraft Electronics Technician (NCATT-AET) examination additional ratings including advanced weather equipment, Enhanced Synthetic Vision (EVS). Includes general obstacles to taking the additional ratings for the NCATT-AET navigation (Nav) and communication (Com) ratings.

**Prerequisite(s):** ATT 105.

*Information:* Current Natina; Center for Aircraft Technician Training - Aircraft Electronics Technician (NCATT-AET) certification is required prior to enrolling in this course.

Offered: Fall, Spring, Summer.

## Behavioral Health Services

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**BHS 132 Communication Skills in Behavioral Health Services**

3 cr. hrs. 3 periods (3 lec.)

Development of communication skills important in establishing and maintaining effective helping relationships. Includes an emphasis on building rapport, improving effective listening skills, establishing trust, and delivering and receiving appropriate feedback. Also includes an overview of the helping process and the professional and physical environments in which counseling occurs.

Offered: Fall, Spring, Summer.

**BHS 154 Behavioral Health Lab and Safety Protocol**

3 cr. hrs. 4 periods (2.5 lec., 1.5 lab)

Introduction to the basic clinical procedures and safety precautions performed by a behavioral health specialist on site in a behavioral health setting. Includes facility, environmental, and patient safety; clinical and observational procedures such as taking vital signs and blood glucose monitoring (point of care testing); and observation and documentation of patients' behavior and physical condition. Also includes personal patient comfort and care, as well as basic medical terminology used in a behavioral healthcare clinical setting.

**Prerequisite(s):** SSE 128.

Offered: Fall, Spring, Summer.

**BHS 172 Clinical Behaviors**

3 cr. hrs. 3 periods (3 lec.)

Clinical Behaviors Overview of primary clinical behaviors encountered by behavioral health professionals, including substance use, violence and abuse, and grief and bereavement. Includes the spectrum of substance use issues, such as classification of drugs, theories of addiction, cultural perspectives, and treatment interventions. Also includes historical and contemporary causes of domestic violence, community resources, treatment centers and support groups, cultural awareness, and special populations at risk. Also includes techniques, strategies and treatment modalities for working with the bereaved and those affected by traumatic loss.

Offered: Fall, Spring, Summer.

**BHS 189LC Behavioral Health Clinical - Basic**

1 cr. hrs. 2 periods (.75 lec., 1.25 lab)

Provides students with hands on experience at a behavioral health organization. Includes an orientation to working in the behavioral health field; observation of professionals working directly with individuals receiving behavioral health care; professionalism in the behavioral health field; and application of the principles of care giving through hands on experience. Also includes direction in case management; patient relations; case documentation; and safety, clinical, and regulatory protocol.

**Prerequisite(s):** SSE 128.

Offered: Fall, Spring, Summer.

**BHS 250 Case Documentation**

2 cr. hrs. 2 periods (2 lec.)

Observation and documentation techniques necessary to maintain clinical records in a variety of community behavioral health settings. Includes appropriate terminology, technical forms, and the application of legal issues in case reports. Also includes an introduction to the types of clinical cases that behavioral health professionals encounter during the continuum of care, such as substance use and mental health issues.

**Prerequisite(s):** CSA 100, SSE 128, BHS 132 and 154.

Offered: Fall, Spring, Summer.

## Biology

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**BIO 100IN Biology Concepts**

4 cr. hrs. 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 designates an integrated lecture/lab combination.*

Offered: Fall, Spring, Summer.

**BIO 104IN Animal Sexual Behavior**

4 cr. hrs. 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, Spring.

**BIO 105IN Environmental Biology**

4 cr. hrs. 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 designates an integrated lecture/lab combination.*

Offered: Fall, Spring, Summer.

**BIO 108IN Plants, People and Society**

4 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor.*

*Information: Same as MLT 110.*

Offered: Fall.

**BIO 115IN Wildlife of North America**

4 cr. hrs. 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 cr. hrs. 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: Spring.

**BIO 127IN Human Nutrition and Biology**

4 cr. hrs. 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.*

*Information: Same as FSN 127IN.*

Offered: Fall, Spring, Summer.

**BIO 135IN Genetics, Biotechnology and Human Affairs**

4 cr. hrs. 6 periods (3 lec., 3 lab)

An introduction to human genetics and biotechnology including career exploration, history and applications 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.

*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 156IN Intro Biology Allied Health**

4 cr. hrs. 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 the lecture and lab taught simultaneously.*

Offered: Fall, Spring, Summer.

**BIO 157 Basic Histology for Anatomy and Physiology**

1 cr. hrs. 1 periods (1 lec.)

Structure and function of tissues found in the human body. Includes epithelial, connective, muscle, and nerve tissues.

**Recommendation:** Prior completion of or concurrent enrollment in BIO 181IN is recommended.

*Information: Completion of this course and BIO 181IN with grades of C or better will enable a student to enroll in BIO 201IN.*

Offered: May not be offered this year, check class schedule.

**BIO 160IN Introduction to Human Anatomy and Physiology**

4 cr. hrs. 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) SUN# BIO 1181**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Principles of structure and function of living things at the molecular and cellular levels of organization. Includes introduction to the scientific process, scientific measurements and laboratory techniques, chemistry of cells, organization of cells, metabolism, cell communication, patterns of cell division, patterns of inheritance, nucleic acids, gene expression, and biotechnology.

**Prerequisite(s):** *With a grade of C or better: CHM 151, REA 112 (or assessment above this level) and WRT 100 or 106 (or assessment into WRT 101).*

**Recommendation:** *BIO 100IN or BIO 156IN is recommended for students who did not complete one year of general high school biology with a grade of B or better.*

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

*Offered: Fall, Spring, Summer.*

**BIO 182IN General Biology II: (Majors) SUN# BIO 1182**

4 cr. hrs. 6 periods (3 lec., 3 lab)

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 181IN before enrolling in this course.*

*Information: IN designates an integrated lecture/lab combination.*

*Offered: Fall, Spring, Summer.*

**BIO 183IN Marine Biology**

4 cr. hrs. 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 cr. hrs. 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 201IN Human Anatomy and Physiology I SUN# BIO 2201**

4 cr. hrs. 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, autonomic nervous system, and special senses.

**Prerequisite(s):** *BIO 156IN with a C or better; or BIO 157 and BIO 181IN each with a grade of 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 the Biology Assessment Exam.*

*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 SUN# BIO 2202**

4 cr. hrs. 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 designates an integrated lecture/lab combination.*

Offered: Fall, Spring, Summer.

**BIO 203 Anatomy and Physiology Review for Health Related Professions**

1.25 cr. hrs. 1.25 periods (1.25 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 3 times for a maximum of 3.75 credit hours.*

Offered: Fall, Spring.

**BIO 205IN Microbiology SUN# BIO 2205**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Overview of the microbial world (bacteria, protozoa, fungi, and viruses). Includes microbial cell structure and function; diversity of microorganisms; growth; metabolism; microbial genetics; the identification of microorganisms; and the role of microorganisms in disease and immunity. Also includes principles of microbial control; antibiotic resistance; epidemiology; and pathogenesis; as well as laboratory exercises to provide firsthand experience with the organisms and processes discussed in lecture.

**Prerequisite(s):** *BIO 156IN or 160IN or 181IN or required score on the Biology assessment test.*

**Recommendation:** *Completion of CHM 130 or equivalent.*

*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 cr. hrs. 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 cr. hrs. 6 periods (3 lec., 3 lab)

Principles and methodologies of protein expression, isolation, identification and purification. Includes immunological and cell culture techniques.

*Information: Consent of instructor required before enrolling in this course.*

Offered: Spring.

**BIO 250 Biomedical Ethics**

3 cr. hrs. 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, Spring, Summer.

**BIO 289 FACES-Fostering and Achieving Cultural Equity and Sensitivity**

3-4 cr. hrs. 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 295LB Independent Research in Biology**

1-4 cr. hrs. 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 are required before enrolling in this course.*

*Information: May be taken three times for a maximum of twelve credit hours.*

*Offered: May not be offered this year, check class schedule.*

**BIO 296 Special Projects in Biology**

1-4 cr. hrs. 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.*

*Information: May be taken two times for a maximum of eight credit hours.*

*Offered: Fall, Spring, Summer.*

**BIO 299 Introduction to Co-op: Biotechnology**

1 cr. hrs. 1 periods (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: Consent of instructor is required before enrolling in this course.*

*Information: May be taken two times for a maximum of two credit hours.*

*Offered: Fall, Spring.*

**BIO 299WK Co-op Work: Biotechnology**

3 cr. hrs. 15 periods (15 lab)

A supervised cooperative work program for students in the biotechnology industry or academic research. Includes teacher-coordinators working with students and their supervisors in industry or research. Also includes developing competency and improved self-confidence in the biotechnology workplace.

**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: Consent of instructor is required before enrolling in this course.*

*Information: This may be paid or unpaid experience.*

*Information: May be taken two times for a maximum of six credit hours.*

*Offered: Fall, Spring, Summer.*

## Building and Construction Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**BCT 100 Professionalism in Service for BCT**

1 cr. hrs. 1 periods (1 lec.)

Procedures in business and customer service. Includes an introduction to professionalism, self-evaluation, service routine, addressing dissatisfied customers, and problem situations.

*Offered: Fall, Spring, Summer.*

**BCT 101 Principles of Construction**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the principles of construction. Includes the building delivery process, government constraints, green building and sustainable design, calculating loads and resistance factors, and composition, closing process, codes, and Green Building Certification and Award.

*Offered: Fall, Spring.*

**BCT 102 Building Materials**

3 cr. hrs. 3 periods (3 lec.)

Construction standards and specific types of building materials used in commercial, industrial, residential and private construction projects. Includes beginning 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 cr. hrs. 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, and 132 or concurrent enrollment.

Offered: Fall, Spring, Summer.

**BCT 106 Soldering and Brazing for BCT**

4 cr. hrs. 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, and 115 or concurrent enrollment.

Offered: Fall, Spring, Summer.

**BCT 111 Basic Safety for the Building Trades**

1 cr. hrs. 1 periods (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 cr. hrs. 1 periods (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 cr. hrs. 1 periods (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 cr. hrs. 1 periods (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 cr. hrs. 1 periods (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, rigging and moving equipment use, and handling hazardous material.

Offered: Fall, Spring, Summer.

**BCT 120 Blueprint Reading for Construction**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 1 periods (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.

Offered: Fall, Spring, Summer.

**BCT 132 Residential and Industrial HVAC I**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Introduction to materials and procedures for heating, ventilating, and air conditioning (HVAC). Includes trade mathematics, copper and plastic piping practices, soldering and brazing, ferrous metal piping practices, basic electricity, introduction to cooling and heating, and air distribution systems.

**Prerequisite(s):** BCT 111, 112, 113, 114, 115.

Offered: Fall, Spring, Summer.

**BCT 133 Residential and Industrial HVAC II**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Introduction to commercial airside systems. Includes chimneys, vents, flues, hydronic systems, air quality equipment, leak detection, evacuation, recovery, charging, alternating current, and basic electronics.

**Prerequisite(s):** BCT 132.

Offered: Fall, Spring, Summer.

**BCT 134 Residential and Industrial HVAC III**

4 cr. hrs. 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 cr. hrs. 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 145 Carpentry I**

4 cr. hrs. 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, and 115 or concurrent enrollment.

Offered: Fall, Spring, Summer.

**BCT 146 Woodworking I**

3 cr. hrs. 5 periods (2 lec., 3 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 cuts, job site safety, gluing and clamping, veneers, curves and circles, dados and rabbets, and smoothing wood.

Offered: Fall.

**BCT 147 Woodworking II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

A continuation of BCT 146. Advanced topics in woodworking. Includes safety practices; designing and planning; measuring and cutting; planning, chiseling, and sanding; butt, biscuit and dowel joints; rabbet joints; dado joints; lap joints; miter joints; mortise-and-tenon joint; veneers; using fasteners, dovetail joints and case casework; and applying stains and clear finishes.

**Prerequisite(s):** BCT 146.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Spring.

**BCT 148 Cabinetmaking I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Concepts and procedures for fine woodworking practices. Includes introduction to cabinetmaking, cabinetry styles, human factors, working drawings, lumber and millwork, manufactured panel products, veneers and plastic overlays, hardware, health and safety, measuring and laying out materials, stationary power machines, hand and portable power tools, surfacing and shaping, and building a basic cabinet.

**Prerequisite(s):** BCT 147.

Offered: May not be offered this year, check class schedule.

**BCT 149 Cabinetmaking II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of BCT 148. Includes turning, joint making, abrasives and sanding machines, gluing and clamping, bending and laminating wood, overlaying and inlaying veneer, installing plastic laminates, advanced case construction, doors, drawers, applying finishing materials, kitchen cabinets, industrial production cabinetmaking, and employment in cabinetmaking.

**Prerequisite(s):** BCT 148.

*Information: Prerequisite may be waived with appropriate carpentry/cabinetmaking skills. See an instructor or department chair for information.*

Offered: May not be offered this year, check class schedule.

**BCT 150 Plumbing Basics**

4 cr. hrs. 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 153 Finishing Techniques in Cabinet and Furniture Making**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Wood finishing techniques for cabinet and furniture making. Includes safe and effective use of a variety of wood finishes and finishing equipment, reasons for finishing wood, tools for applying finishes, oil finishes, wood stains, pore fillers, introduction to film finishes, shellac, lacquer, varnish, water-based finishes, conversion finishes, choosing a finish, finishing the finish, caring for wood finishes, repairing finishes, finishing different woods, and strippers.

**Recommendation:** Woodworking and cabinetmaking experience helpful. See a BCT faculty member for assistance.

Offered: Fall.

**BCT 159 Furniture Design and Construction**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Wood furniture-making techniques for hobbyists and professionals. Includes basic material; tools and equipment safety and use; basic techniques and joint construction; advanced areas of furniture construction; metal fittings/fasteners and their application; advanced techniques in furniture making; drafting and workshop geometry; furniture designs and construction details; and restoration, repairs, and wood finishing.

**Prerequisite(s):** BCT 147.

Offered: Spring.

**BCT 160 Roof Mounting for Solar Installations**

4 cr. hrs. 4 periods (4 lec.)

Techniques and skills for Photovoltaic (PV) installers to size, design, and install solar panels. Includes an introduction to different types of mounting systems. Also includes site location of panels, orientation to house, shading at the site, weather, roof materials, soil and load bearing capacity.

Offered: May not be offered this year, check class schedule.

**BCT 172 Electrical I**

4 cr. hrs. 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, raceways, 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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; electrical applications; 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 cr. hrs. 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 provide preparation for the National Electrical Code certification exam.

Offered: Fall, Spring, Summer.

**BCT 190 Fieldwork for Construction**

1-8 cr. hrs. 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.

**Information:** 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 202 Construction Business Management**

3 cr. hrs. 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 cr. hrs. 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: Fall, Spring.

**BCT 231 Residential and Industrial HVAC IV**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 134. Includes refrigerants and oil, compressors, metering devices, retail refrigeration systems, commercial hydronic systems, and steam systems.

**Prerequisite(s):** BCT 134.

Offered: Fall, Spring, Summer.

**BCT 232 Residential and Industrial HVAC V**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 231. Includes planned maintenance, water treatment, troubleshooting electronic controls, troubleshooting oil heating, troubleshooting heat pumps, and troubleshooting accessories.

**Prerequisite(s):** BCT 231.

Offered: Fall, Spring, Summer.

**BCT 233 Residential and Industrial HVAC VI**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 232. Includes construction drawings and specifications, indoor air quality, energy conservation equipment, and building management systems.

**Prerequisite(s):** BCT 232.

Offered: Fall, Spring, Summer.

**BCT 234 Residential and Industrial HVAC VII**

4 cr. hrs. 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: Fall, Spring, Summer.

**BCT 235 National Electric Code Commercial Wiring Applications**

4 cr. hrs. 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 luminaries, emergency and standby power systems, and overcurrent protection.

**Prerequisite(s):** BCT 135.

Offered: Fall, Spring, Summer.

**BCT 236 Residential and Industrial Plumbing IV**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Concepts that apply to plumbing installations. Includes applied math, sizing water supply piping, potable water treatment, and backflow preventers.

**Prerequisite(s):** BCT 183.

Offered: Fall, Summer.

**BCT 237 Residential and Industrial Plumbing V**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 236. Includes types of venting; sizing DWV and storm systems; sewage pumps and sump pumps; corrosive resistant waste piping; and compressed air.

**Prerequisite(s):** BCT 236.

Offered: Fall, Spring, Summer.

**BCT 238 Residential and Industrial Plumbing VI**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 237. Includes concepts and practices essential to competitive and successful plumbing businesses. Also includes business principles for plumbers, introductory skills for the crew leader, water pressure booster and recirculation systems, indirect and special waste, and hydronic and solar heating systems.

**Prerequisite(s):** BCT 237.

Offered: Fall, Spring, Summer.

**BCT 239 Residential and Industrial Plumbing VII**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 238. Includes codes; servicing piping systems, fixtures, and appliances; private water supply well systems; private waste disposal systems; swimming pools and hot tubs; and plumbing for mobile homes and travel trailers.

**Prerequisite(s):** BCT 238.

*Information: BCT coursework 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 245 Carpentry II**

4 cr. hrs. 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 255M Sustainability in Construction Installation**

1 cr. hrs. 1 periods (1 lec.)

Fundamentals of green and sustainability construction, safety in the construction and installation of photovoltaic (PV) solar panel mounting systems and tracker sub categories. Includes safety basics, identification of safety hazards, practices and protective equipment needed during PV system installation, and maintenance. Also includes the identification of tools needed and the recommended green sustainable energy efficient choice of materials.

Offered: May not be offered this year, check class schedule.

**BCT 255N Train the Trainer for Building Trades**

1 cr. hrs. 1 periods (1 lec.)

Teaching skills for building trade leaders and trainers. Includes how to use proven training methods; explore individual learning styles; develop materials, and create lesson plans. Also includes techniques that provide a flexible approach to training delivery, enable trainers to understand the techniques that provide a flexible approach to training delivery, enable trainers to understand the fundamental stages of the learning process, and apply knowledge learned to deliver effective building trade training.

Offered: May not be offered this year, check class schedule.

**BCT 265 Sustainability for Building Trades**

3 cr. hrs. 3 periods (3 lec.)

Fundamentals of sustainable design. Includes green building practices and implementation. Also includes green building concepts, site and building planning and development, materials, strategies, cost benefit analysis, and practical applications in the current construction business environment.

Offered: Fall, Spring, Summer.



**BCT 271 Electrical IV**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 174. Includes load calculations-branch and feeder circuits, conductor selection and calculations, practical applications of lighting, hazardous locations, and overcurrent protection.

**Prerequisite(s):** BCT 174.

Offered: Fall, Spring, Summer.

**BCT 272 Electrical V**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 271. Includes distribution equipment, transformers, commercial electrical services, motor calculations, voice, data, and video, and motor controls.

**Prerequisite(s):** BCT 271.

Offered: Fall, Summer.

**BCT 273 Electrical VI**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of BCT 272. Includes load calculations-feeders and services, health care facilities, standby and emergency systems, basic electronic theory, fire alarm systems, and specialty transformers.

**Prerequisite(s):** BCT 272.

Offered: Fall, Spring, Summer.

**BCT 274 Electrical VII**

4 cr. hrs. 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: Fall, Spring, Summer.

**BCT 284 National Electrical Code II**

3 cr. hrs. 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 provide preparation for the National Electrical Code certification exam.*

Offered: Fall, Spring, Summer.

**BCT 286 International Residential Code (IRC) I**

3 cr. hrs. 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 cr. hrs. 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.

## Business

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### BUS 100 Introduction to Business

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Introduction to 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, Summer.

### BUS 148 Ethics in the Workplace

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Applying mathematical procedures, using algebraic techniques, critical thinking, and problem-solving methods for practical utility in the business environment. Includes math review; bank records; payroll; trade and cash discounts; markup and markdown; simple and compound interest; present and future value; annuities and sinking funds; consumer credit; depreciation; inventory, overhead, and turnover; financial statements; insurance; taxes; and stocks and bonds.

**Prerequisite(s):** MAT 086 or completion of Module 22 in MAT 089 or satisfactory score on the Mathematics assessment test.

Offered: Fall, Spring, Summer.

### BUS 205 Statistical Methods in Economics and Business SUN# BUS 2201

3 cr. hrs. 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, sampling distributions, inferences based on single sample and two samples; estimation with confidence intervals and tests of hypothesis, correlation and regression, times series, design of experiments and analysis of variance (ANOVA), and categorical data analysis.

**Prerequisite(s):** MAT 172 or MAT 173 or MAT 212 or higher.

**Recommendation:** CSA 110A.

*Information: Basic Excel knowledge is required before enrolling in this course. CSA 110A meets this requirement.*

Offered: Fall, Spring, Summer.

### BUS 210 International Business

3 cr. hrs. 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: May not be offered this year, check class schedule.

### BUS 220 Legal Environment of Business

3 cr. hrs. 3 periods (3 lec.)

Overview of the impact of law, ethics and corporate responsibility in business. Includes basic concepts of law, structure, characteristics, the administration thereof, and continues through the many facets of business and the law including without limitation, formation, operation, ethics, corporate responsibility, agency, contracts, and government regulation.

Offered: Fall, Spring, Summer.

**BUS 250 Entrepreneurship**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**BUS 296 Independent Study in Business**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Independent study projects or special interest areas in business under the supervision of a faculty member.

**Prerequisites(s):** BUS 100.

*Information:* May be taken two times for a maximum of six credit hours.

Offered: Fall, Spring, Summer.

**BUS 299 Introduction to Co-op: Business**

1 cr. hrs. 1 periods (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 cr. hrs. 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: Fall, Spring, Summer.

## Career and Technical Education

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CTE 210 Methods of Teaching Career and Technical Education**

3 cr. hrs. 3 periods (3 lec.)

Introduction to instructional classroom management and assessment strategies pertinent to teaching in the secondary schools. Includes the role and function of the teacher in a CTE classroom, laboratory, or shop, standards-based instruction, constructing lesson plans, assessment, instructional strategies, and serving special needs students.

Offered: Fall, Spring, Summer.

**CTE 275 CTE Classroom, Laboratory, and Shop Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction to managing the CTE classroom, laboratory, shop and instructional environments. Includes how to create a safe learning environment, design classroom and laboratory procedures, and develop an effective classroom management plan. Also includes how teachers will implement organizational systems to manage work-based learning experiences, student records, learning experiences, student records, supplies, equipment, tools, finances and facilities.

Offered: Fall.

**CTE 285 Curriculum Development for Career and Technical Education**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the design and use of CTE curriculum. Includes standards, standard indicators, performance objectives, and curriculum mapping. Includes the study of learning styles, designing lessons to encourage appropriate outcomes and behaviors of all learners, questioning techniques, demonstrations, and field trips. Also includes the application requirement to demonstrate the process for developing curriculum for a CTE program including: courses of study, syllabi, lesson plans and assessment.

Offered: Spring.

**CTE 288 Operation of Career and Technical Student Organizations**

3 cr. hrs. 3 periods (3 lec.)

Introduction to developing student leadership via career and technical student organizations (CTSO). Includes how to elect and train officers, develop an effective program of work, create meaningful agendas, run meetings using parliamentary procedure, and create constitution and bylaws. Includes the intracurricular nature and legal aspects of advising the CTSO. Also includes the creation of a plan for the implementation of a CTSO that is appropriate for the CTE program.

Offered: Summer.

## Chemistry

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**CHM 080 Preparation for General Chemistry**

3 cr. hrs. 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 92 with a C or better, or Module 31 in MAT 089, or required score on the mathematics assessment test.

*Information:* Designed to prepare students for CHM 151.

Offered: Fall, Spring, Summer.

**CHM 121IN Chemistry and Society**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Basic chemistry and its relationship to everyday experiences. Includes classification and structure of matter; radioactivity; compound formation from elements; electron transfer; acids, bases, and salts; the liquid state; the gas state; and special topics.

*Information:* Designed for non-science majors, education majors, and the general public.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Spring.

**CHM 123IN Chemistry and Art**

4 cr. hrs. 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:* This is an integrated version of the course with the lecture and lab taught simultaneously.

Offered: May not be offered this year, check class schedule.

**CHM 125IN Consumer Chemistry**

4 cr. hrs. 6 periods (3 lec., 3 lab)

An overview of the chemistry of everyday products and processes for the non-science major. Includes the chemistry of toothpaste, deodorants, cosmetics, soaps and detergents, food, toys, paints, plastics and other products commonly found in the kitchen, laundry, bathroom, bedroom, and workshop. Also includes the process of science and the scientific method.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Information:* No previous chemistry experience is required.

Offered: Fall.

**CHM 128IN Forensic Chemistry**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Evolution, practice, and trends in the use of chemistry, physics and biology in forensic studies. Includes the study of scientific methods, applications of molecular biology in DNA analysis, crime scene evidence analysis; i.e., drugs, ballistics, and terrorism. Also includes the discussion of implications and effects these applications have on the law, courts, and society.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Information:* Previous knowledge of math, biology, chemistry is advantageous.

Offered: Fall, Spring.

**CHM 130 Fundamental Chemistry SUN# CHM 1130**

4 cr. hrs. 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 C or better, or Module 31 in MAT 089, 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 cr. hrs. 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 C or better, or Module 31 in MAT 089, 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 cr. hrs. 3 periods (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 C or better, or Module 31 in MAT 089, or required score on the mathematics assessment test.

**Corequisite(s):** CHM 130

*Information: This is the Lab portion of CHM 130.*

Offered: Fall, Spring, Summer.

**CHM 140 Fundamental Organic and Biochemistry SUN# CHM 2230**

4 cr. hrs. 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 130/130LB or CHM 130IN with a grade of C or better.

**Corequisite(s):** CHM 140LB

*Information: Adapted to the needs of students in nursing and other health professions.*

Offered: Summer.

**CHM 140IN Fundamental Organic and Biochemistry**

5 cr. hrs. 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 130/130LB or CHM 130IN with a grade of C or better.

*Information: 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.

**CHM 140LB Fundamental Organic and Biochemistry Lab**

1 cr. hrs. 3 periods (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 130/130LB or CHM 130IN with a grade of C or better.

**Corequisite(s):** CHM 140

*Information: Adapted to the needs of students in nursing and other health related professions.*

Offered: Summer.

**CHM 151 General Chemistry I**

4 cr. hrs. 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):** With a grade of C or better: MAT 122 and either CHM 080 or CHM 130/130LB or CHM 130IN or placement into CHM 151 on the Chemistry assessment test.

**Corequisite(s):** CHM 151LB

Offered: May not be offered this year, check class schedule.

**CHM 151IN General Chemistry I SUN# CHM 1151**

5 cr. hrs. 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):** With a grade of C or better: MAT 122 and either CHM 080 or CHM 130/130LB or CHM 130IN or placement into CHM 151 on the Chemistry assessment test.

*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 cr. hrs. 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):** With a grade of C or better: MAT 122 and either CHM 080 or CHM 130/130LB or CHM 130IN or placement into CHM 151 on the Chemistry assessment test.

**Corequisite(s):** CHM 151

Offered: May not be offered this year, check class schedule.

**CHM 152 General Chemistry II**

4 cr. hrs. 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):** With a grade of C or better: MAT 151 and either CHM 151/151LB or CHM 151IN.

**Corequisite(s):** CHM 152LB

*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 152IN General Chemistry II SUN# CHM 1152**

5 cr. hrs. 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):** With a grade of C or better: MAT 151 and either 151/151LB or CHM 151IN.

*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 cr. hrs. 3 periods (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):** With a grade of C or better: MAT 151 and either CHM 151/151LB or CHM 151IN.

**Corequisite(s):** CHM 152

*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 195 Introduction to Research in Chemistry**

4 cr. hrs. 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 cr. hrs. 3-12 periods (3-12 lab)

Laboratory projects varying with students' interests and reasons for enrolling.

*Offered: May not be offered this year, check class schedule.*

**CHM 235 General Organic Chemistry I**

4 cr. hrs. 4 periods (4 lec.)

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.

**Prerequisite(s):** CHM 152/152LB or CHM 152IN with a grade of C or better.

**Corequisite(s):** CHM 235LB

*Offered: May not be offered this year, check class schedule.*

**CHM 235IN General Organic Chemistry I SUN# CHM 2235**

5 cr. hrs. 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. Also focuses on laboratory safety skills and computer software applications related to chemistry.

**Prerequisite(s):** CHM 152/152LB or CHM 152IN with a grade of C or better.

*Information: IN class is an integrated presentation of CHM 235 and CHM 235LB.*

*Offered: Fall, Spring, Summer.*

**CHM 235LB General Organic Chemistry I Lab**

1 cr. hrs. 3 periods (3 lab)

Application of the organic chemistry concepts addressed in CHM 235. Includes classification, occurrence, synthesis, analysis, stereochemistry and reaction mechanisms of organic compounds, using a wide range of laboratory apparatus and procedures. Also focuses on laboratory safety skills and computer software related to chemistry.

**Prerequisite(s):** CHM 152/152LB or CHM 152IN with a grade of C or better.

**Corequisite(s):** CHM 235

*Offered: May not be offered this year, check class schedule.*

**CHM 236 General Organic Chemistry II**

4 cr. hrs. 4 periods (4 lec.)

Continuation of CHM 235. Includes remaining classes of organic compounds, including dienes, alcohols, ethers, epoxides, aldehydes, ketones, acids, acid derivatives, aromatics, and nitrogen containing compounds. Also 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):** CHM 235/235LB or CHM 235IN with a grade of C or better.

**Corequisite(s):** CHM 236LB

*Offered: May not be offered this year, check class schedule.*

**CHM 236IN General Organic Chemistry II SUN# CHM 2236**

5 cr. hrs. 7 periods (4 lec., 3 lab)

Continuation of CHM 235. Includes 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. Also includes an emphasis on synthesis and use of chemical and instrumental methods as means of identification while using a wide range of laboratory apparatus and procedures. Also focuses on laboratory safety skills and computer software applications related to chemistry.

**Prerequisite(s):** CHM 235/235LB or CHM 235IN 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 cr. hrs. 3 periods (3 lab)

Continuation of CHM 235 LB. Includes remaining classes of organic compounds as 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. Also includes laboratory safety skills and computer software applications as related to chemistry.

**Prerequisite(s):** CHM 235/235LB or CHM 235IN with a grade of C or better.

**Corequisite(s):** CHM 236

Offered: May not be offered this year, check class schedule.

**CHM 290 Chemistry Internship**

1-4 cr. hrs. 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, Summer.

**CHM 295LB Independent Research in Chemistry**

1-4 cr. hrs. 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.*

*Information: May be taken three times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

## Child Development Associate

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**CDA 102 The Child's Total Learning Environment**

1 cr. hrs. 1 periods (1 lec.)

Analysis of the total learning environment for children birth through age 8. Includes establishing an educational learning environment, value of a child-centered learning environment, the indoor and outdoor environment, developmentally appropriate learning centers, and play materials. Also includes the teacher's role and responsibility within the learning environment, and utilizing the community as an integral part of the child's total learning environment.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 103 Curriculum Planning and Schedule Development**

1 cr. hrs. 1 periods (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.

*Information: All CDA courses require college-level reading and writing.*

Offered: Fall, Spring, Summer.

**CDA 112 Guidance Principles for Encouraging Self-Discipline**

1 cr. hrs. 1 periods (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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Spring.



**CDA 114 Collecting, Organizing and Using Teaching Aids**

1 cr. hrs. 1 periods (1 lec.)

Survey of several different types of teaching aids used in the early care and education environment for children birth through age eight. Includes identifying what belongs in a developmentally appropriate learning environment for children, how to sort and organize teaching aids according to types, how to incorporate those teaching aids into the various curricula areas of the program and sharing with families through reciprocal relationships. Also includes various types of teaching aids such as individual children's portfolios, activity card file collection, picture and poster file, media resources, reference materials, professional literature, and community resources.

Offered: Fall.

**CDA 121 Techniques for Observing Children**

1 cr. hrs. 1 periods (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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 126 Literature for Preschool Children**

2 cr. hrs. 2 periods (2 lec.)

Survey of materials and techniques for the selection and evaluation of children's literature. Includes the importance of literature for children, creating a developmentally appropriate environment for young readers, general categories of books, importance of pictures/illustrations and storytelling, reading aloud to children, creating a story with children and the teacher's role.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Spring.

**CDA 138 Building Parent and Classroom Connections**

3 cr. hrs. 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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 155 Understanding How Children Learn and Develop**

1 cr. hrs. 1 periods (1 lec.)

Exploration of the cognitive learning progression of children birth through age 8. Includes introduction of various theorists, ways children learn, and the family and community influences and support toward a child's learning and the teacher's role

Offered: Fall, Spring, Summer.

**CDA 161 Principles of Social Competence**

1 cr. hrs. 1 periods (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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 170 Ages and Stages of Young Children: Prenatal through Toddler**

2 cr. hrs. 2 periods (2 lec.)

Examination of the developmental stages pre-birth to age three years. 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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 173 Ages and Stages of Young Children: The Preschool Years**

1 cr. hrs. 1 periods (1 lec.)

Examination of the developmental stages of preschool children ages 3 to 5 years. Includes general principles and theories of development, physical characteristics, pattern of motor skill development, cognitive development, socio-emotional development, developmental concerns and challenges and family involvement.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 211 Small and Large Muscle Development**

2 cr. hrs. 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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 222 Elements of Children's Culture**

1 cr. hrs. 1 periods (1 lec.)

Examination of the ways culture affects children's learning. Includes an overview of multiculturalism, cross-cultural competence, responsive learning environment, and family and community involvement.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 224 Learning Theories and Cognitive Development Applications**

2 cr. hrs. 2 periods (2 lec.)

Analysis of how young children grow and learn. Includes egocentrism, cognitive and memory development, concept formation and problem solving skills, and sharing resource with parents.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall.

**CDA 229 Child Development Associate Assessment Preparation**

3 cr. hrs. 3 periods (3 lec.)

Strategies for completion of the CDA Assessment. Includes documentation requirements, resource file, direct assessment application form, and verification visit requirements.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 257 Record Keeping for the Family Child Care Provider**

1 cr. hrs. 1 periods (1 lec.)

Strategies for the development of a record keeping system to use in child care. Includes operating a small business, and organizing records. Also includes income tax forms, special tax liabilities and responsibilities, and important records to retain.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Summer.

**CDA 258 Family Child Care as a Small Business**

1 cr. hrs. 1 periods (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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Summer.

**CDA 259 Balancing Work and Family in a Family Child Care Setting**

1 cr. hrs. 1 periods (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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Summer.

**CDA 271 Professionalism in Childcare**

1 cr. hrs. 1 periods (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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 273 Ages and Stages: The Middle Childhood Years**

1 cr. hrs. 1 periods (1 lec.)

Examination of the stages of growth and development during the middle childhood years (ages 6 to 8). Includes physical growth, motor development, logical thinking and language skills, and social and emotional growth. Also includes examining developmental concerns and challenges and parental involvement.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Fall, Spring, Summer.

**CDA 275 Transitions**

1 cr. hrs. 1 periods (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.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Spring.

**CDA 276 Preparing a NAEYC Classroom Portfolio**

3 cr. hrs. 3 periods (3 lec.)

Facilitation of the process of NAEYC Classroom Portfolio preparation. Includes the types of documentation that provide evidence that the classroom implementation meets the NAEYC Accreditation criteria. This is part of the NAEYC Self-Study and Self-Assessment process leading to NAEYC Accreditation.

*Information: Students must have college-level reading and writing skills in order to be successful in all CDA classes.*

Offered: Spring.

## Chinese

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CHI 101 Elementary Chinese (Mandarin) I SUN# CHI 1101**

5 cr. hrs. 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, Spring.

**CHI 102 Elementary Chinese (Mandarin) II SUN# CHI 1102**

5 cr. hrs. 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: Fall.

**CHI 201 Intermediate Chinese I SUN# CHI 2201**

5 cr. hrs. 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 SUN# CHI 2202**

5 cr. hrs. 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.

## Clinical Research Coordinator

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**CRC 101 Foundations of Clinical Research**

3 cr. hrs. 3 periods (3 lec.)

A comprehensive introduction to the clinical research process and practice. Includes history and evolution of clinical research, phases of clinical trials, protection of human subjects, clinical research team personnel and their roles, and the responsibilities of clinical research organizations. Also includes medical, clinical research, and standard pharmaceutical/pharmacological terms commonly used in clinical research; and issues of sensitivity, diversity, and ethics as applied to clinical research.

**Prerequisite(s):** BIO 160IN or concurrent enrollment.

Information: Introductory class for program core.

Offered: Fall.

**CRC 201 Clinical Research Regulatory Compliance**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the Food and Drug Administration (FDA) regulatory process and regulatory requirements for clinical research. Includes an overview of the role and function of the FDA, the drug development process, preparation and maintenance of an Investigational New Drug (IND), regulatory documentation, safety reporting, and Good Clinical Practices (GCPs).

**Recommendation:** Completion of CRC 101, or concurrent enrollment in the course.

Offered: Fall.

**CRC 230 Introduction to Clinical Research Study Protocol**

2 cr. hrs. 2 periods (2 lec.)

Introduction to the scientific development of research protocols and related regulatory requirements. Includes differentiations among research design types, rules for writing protocols, and ethical considerations relative to research protocols.

**Prerequisite(s):** CRC 101.

**Recommendation:** Completion of or concurrent enrollment in CRC 201.

Offered: Fall.

**CRC 240 Pharmacology for Clinical Trials**

4 cr. hrs. 4 periods (4 lec.)

Essential drug knowledge and facts and their application in clinical research. Includes common medical diagnoses and their related drug treatments (brand name and generic); what constitutes a drug; the effects and modes of action of drugs upon the body (pharmacodynamics); method and rate of excretion and duration of the effect of drugs (pharmacokinetics); drug side effects; drug-drug interactions; and how to find and interpret drug-related information from primary literature. Also includes an overview of the drug development process from bench through post-approval marketing.

**Prerequisite(s):** CRC 101.

Offered: Spring.

**CRC 250 Clinical Research Site Coordination and Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the elements involved in implementing and managing a clinical trial from the perspective of the research site staff/team. Includes the identification and evaluation of sites and investigators, on-site budget management, and the coordination of subject participation.

**Prerequisite(s):** CRC 101, 201, 230, 240.

Offered: Spring.

**CRC 260IN Lab Skills and Professional Practice**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Clinical skills training to prepare for clinical research coordinator internship, with emphasis on applying clinical research project coordination concepts and practices in a simulated research setting. Includes research subject communication techniques, medical history review, adverse events, vital signs, EKG procedures, blood collection and specimen processing, storage and shipping. Also includes application of clinical research project coordination practices related to a protocol; research and medical terminology; recruitment, enrollment and retention practices; informed consent; detection of errors within study reports and casework; documentation of medications, adverse events and serious adverse events; review of study subject's file data for completeness and accuracy; and regulatory and legal mandates related to clinical trials.

**Prerequisite(s):** CRC 101, 201, 230, 240, 250.

Offered: Spring.

**CRC 270 Research Management for Sponsors and CRO's**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the elements involved in implementing, monitoring and managing a clinical study from the perspective of the Sponsor or Contract Research Organization (CRO). Includes overall project planning, development of study goals, preparation of budget and contracts, implementation of monitoring visits, and effective management of research sites.

**Prerequisite(s):** CRC 250.

Offered: May not be offered this year, check class schedule.

**CRC 291 Clinical Research Coordinator Internship**

1-3 cr. hrs. 3-9 periods (3-9 lab)

Supervised work experience in a clinical research setting. Includes emphasis on the observation and enhancement of professional and management skills team communication and interaction, and the application of research principles, procedures, protocols, and regulations in the workplace. Student will rotate through a variety of research sites agreed upon by the instructor and student.

**Prerequisite(s):** CRC 101, 201, 230, 240, 250, 260IN.

*Information: Consent of instructor is required before enrolling in this course.*

*Information: May be taken three times for a maximum of three credit hours.*

Offered: May not be offered this year, check class schedule.

**CRC 296 Clinical Research Independent Study: Clinical Project**

1-6 cr. hrs. 4-24 periods (4-24 lab)

Students independently continue their development in Clinical Research under the mentorship of a faculty member. Content will be determined by instructor and student.

*Information: Students must obtain lead faculty approval before enrolling in this course.*

*Information: Course content and performance objectives will be kept on file in the campus curriculum coordinator's program file.*

Offered: May not be offered this year, check class schedule.

## Computer Aided Design and Drafting

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CAD 101 Computer Aided Drafting I**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Two-dimensional computer aided drafting (CAD) concepts and techniques. Includes CAD methods, electronic file management, freehand sketching, visualization, dimensioning, hard copy production, and final project.

*Information: For individuals with no computer and/or drafting experience.*

Offered: Fall, Spring, Summer.

**CAD 104 Integrated Circuit Layout Fundamentals**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Principles and concepts of integrated circuit layout using Cadence design software. Includes basic electronics, fundamentals of integrated circuits, circuit design, circuit floorplanning, electronic file management, schematic diagram, and physical layout overview.

**Recommendation:** CAD 114 and TEC 100.

Offered: Fall, Spring.

**CAD 114 Electronic Manufacturing Processes**

2 cr. hrs. 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: Spring.

**CAD 117 Print Reading with CAD for Manufacturing**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Principles and concepts of print reading, technical freehand sketching, and CAD drawing. Includes common print and manufacturing terms, print fundamentals and standards, freehand sketching and CAD applications, and print analysis.

Offered: Fall and Spring.

**CAD 127 Introduction to MicroStation**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to MicroStation basic concepts and techniques. Includes computer aided drafting procedure and methods in the areas of architectural and civil design, electronic file management, software drawing setup, 2D and 3D fundamental elements creation and manipulating elements, annotation, industry standards, scale, dimensioning, hard copy production, and final project.

Offered: Spring.

**CAD 142 Introduction to Parametric Modeling: SolidWorks**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Beginning level parametric modeling mechanical concepts, techniques, and problems using SolidWorks software. Includes parametric modeling, working drawings, assemblies, and plotting techniques.

**Prerequisite(s):** CAD 101.

Offered: Fall, Spring.

**CAD 151 Computer Aided Drafting II**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of Computer Aided Drafting I. Includes advanced drawing and editing tools, advanced layer management, attributed and parametric blocks, data extraction, external references, color- dependent plot styles, 3D modeling, and rendering and lighting of 3D models.

**Prerequisite(s):** CAD 101 or IDE 158.

Offered: Fall, Spring, Summer.

**CAD 152 Technical Drafting**

4 cr. hrs. 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.

Offered: Fall, Spring, Summer.

**CAD 153 Electro-Mechanical Drafting and Design**

4 cr. hrs. 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 cr. hrs. 6 periods (3 lec., 3 lab)

Principles and concepts of mixed signal integrated circuit layout using Cadence design software. Includes design process, circuit floorplanning, analog layout design, digital layout design, ESD (electro-static discharge) design and padding layout, device matching, DRC (design rule check) verification techniques, and LVS (layout versus schematic) verification techniques.

**Prerequisite(s):** CAD 104.

Offered: Fall, Spring.

**CAD 155 Residential Drafting/Design**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Residential Drafting and Design 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.

Offered: Fall, Spring, Summer.

**CAD 157 Introduction to Site Development Drafting and Design**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Overview of site planning and design. Includes introduction to site development, applications of CAD drafting, mapping, location and direction, legal descriptions and plot plans, contour lines, details and drawings, and Geographic Information Systems.

**Prerequisite(s):** CAD 101.

Offered: Fall, Spring, Summer.

**CAD 166 Introduction to Revit**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to Building Information Modeling (BIM) for architectural applications using Revit. Includes the basics of 3D parametric software: how to access tools, develop model, build levels and views, create drawing sheets, and plot drawings. Also includes how to integrate knowledge of building systems: site, floor plan, roof plan, building elevations, building and wall sections, and schedules.

*Information: For individuals with no BIM experience.*

Offered: Fall, Spring.

**CAD 172 Geometric Dimensioning and Tolerancing**

3 cr. hrs. 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 117 or 152.

*Information: Prerequisites may be waived if equivalent mechanical drawing experience is documented. See CAD instructor or advisor/counselor.*

Offered: Fall, Spring.

**CAD 196 Independent Study in Computer Aided Drafting: 100 Level**

1-4 cr. hrs. 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.*

*Information: May be taken three times for a maximum of twelve credits.*

Offered: Fall, Spring.

**CAD 199 Co-op: Computer Aided Drafting**

1 cr. hrs. 1 periods (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):** CAD 199WK

*Information: May be taken two times for a maximum of two credit hours.*

Offered: Fall, Spring.

**CAD 199WK Co-op Work: Computer Aided Drafting**

1-8 cr. hrs. 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):** CAD 199

*Information: May be taken two times for a maximum of sixteen credit hours.*

Offered: Spring.

**CAD 203 Advanced Electro-Mechanical Drafting and Design**

4 cr. hrs. 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.

Offered: Fall, Spring.

**CAD 204 Integrated Circuit Layout Design II**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of CAD 154. Includes intermediate design process, intermediate circuit floorplanning, intermediate analog layout design, intermediate digital layout design, intermediate ESD (electro-static discharge) design and padding layout, intermediate device matching, intermediate DRC (design rule check) verification techniques, and intermediate LVS (layout versus schematic) verification techniques.

**Prerequisite(s):** CAD 154.

Offered: Fall, Spring.

**CAD 206 Commercial Drafting and Design: Revit**

4 cr. hrs. 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 3D modeling.

**Prerequisite(s):** CAD 155 and 166.

Offered: Fall, Spring.

**CAD 207 Drafting and Design for Land Development: Civil 3D**

4 cr. hrs. 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 157.

Offered: Fall.

**CAD 222 Introduction to Parametric Modeling: Inventor**

4 cr. hrs. 6 periods (3 lec., 3 lab)

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 152.

Offered: Fall.

**CAD 232 Advanced Parametric Modeling: Inventor**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of CAD 222. Includes advanced parametric modeling mechanical concepts, techniques, and problems using Inventor software. Also includes full assembly set, including detail drawings, sub-assemblies, and revision tracking.

**Prerequisite(s):** CAD 172 and 222.

Offered: Spring.

**CAD 242 Advanced Parametric Modeling: SolidWorks**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Advanced parametric modeling mechanical concepts, techniques, and problems using SolidWorks. Includes parametric modeling, working drawings, assemblies, and plotting techniques.

**Prerequisite(s):** CAD 142, 152 and 172.

Offered: Fall, Spring.



**CAD 247 Transportation Design: MicroStation**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of CAD 127. Includes advanced civil drafting technology incorporating surveying and mapping data using MicroStation. Also includes the creation of digital terrain model, horizontal alignment, profiles, vertical alignment, model roadway, creation of cross sections, earthwork quantities, annotation, reports and use viewing tools to review final roadway project.

**Prerequisite(s):** CAD 127, 157.

Offered: May not be offered this year, check class schedule.

**CAD 252 Introduction to Parametric Modeling: Creo**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to parametric modeling with Creo. 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 152.

*Information: Solid modeling experience strongly recommended before enrolling in this course.*

Offered: Fall, Spring.

**CAD 254 Integrated Circuit Layout Design III**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of CAD 204. Includes advanced design process, advanced circuit floorplanning, advanced analog layout design, advanced digital layout design, advanced ESD (electro-static discharge) design and padding layout, advanced device matching, advanced DRC (design rule check) verification techniques, and advanced LVS (layout versus schematic) verification techniques.

**Prerequisite(s):** CAD 204.

Offered: May not be offered this year, check class schedule.

**CAD 256 Advanced Commercial Drafting and Design: Revit**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of CAD 206 at the advanced level using Revit MEP. 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: Fall, Spring.

**CAD 257 Advanced Drafting and Design for Land Development: Civil 3D**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of CAD 207 at the advanced level using Civil 3D. 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 265 Design and Drafting for Sustainability**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Computer Aided Design and Drafting (CADD) applications specific to site and building sustainability. Includes green building fundamentals, Geographic Information Systems (GIS), introduction to 3D modeling for analysis, and detailing systems.

**Prerequisite(s):** CAD 155, 157 and 166.

Offered: May not be offered this year, check class schedule.

**CAD 266 Mechanical, Electrical, Plumbing Drafting & Design: Revit MEP**

4 cr. hrs. 6 periods (3 lec., 3 lab)

3D modeling of commercial mechanical, electrical, and plumbing systems. Includes integration with architectural and structural systems, and production of construction documents.

**Prerequisite(s):** CAD 206.

Offered: May not be offered this year, check class schedule.

**CAD 280 Computer Aided Drafting and Design Portfolio**

1 cr. hrs. 1 periods (1 lec.)

Development of materials for employment. Includes portfolio contents, resume, cover letter, practice interview, portfolio, and presentation.

**Prerequisite(s):** CAD 142 or 204 or 206 or 207 or 222 or 252.

Offered: Fall, Spring.

**CAD 282 Advanced Parametric Modeling: Creo**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Advanced parametric modeling using Creo. Includes advanced level parametric modeling applications, shading and rendering of parametric models, constructing mechanical assemblies, and hard copy techniques and procedures.

**Prerequisite(s):** CAD 172 and 252.

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring.

**CAD 296 Independent Study in Computer Aided Drafting: 200 Level**

1-4 cr. hrs. 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.

*Information: Consent of instructor is required before enrolling in this course.*

*Information: May be taken three times for a maximum of twelve credits.*

Offered: Fall, Spring.

## Computer Information Systems

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CIS 100 Introduction to Computers SUN# CIS 1120**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to computer information systems. Includes hardware, system software, networks, the Internet, e-mail, e-commerce, planning and implementing technology solutions, social and ethical issues, social networking, social engineering, and business application tools.

Offered: Fall, Spring, Summer.

**CIS 103 Microsoft Windows Operating System**

4 cr. hrs. 4 periods (4 lec.)

Professional Administration Fundamental skills necessary to perform day-to-day administration tasks in a Microsoft Windows operating system. 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, Summer.

**CIS 119 Network Essentials**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 5 periods (5 lec.)

Introduction to personal and business computer systems. Includes components of a computer system, the Internet, networks, advantages and disadvantages of 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, Summer.

**CIS 131 Programming and Problem Solving II**

5 cr. hrs. 5 periods (5 lec.)

Continuation of CIS 129. Includes data structures and data representation, complex problem solving, procedural abstraction, and complex arrays with structured elements. Also includes object oriented programming, exception handling, file input and output, debugging, and testing.

**Prerequisite(s):** CIS 129.

*Information: Programming assignments will use the C# or Java language.*

Offered: Fall, Spring.

**CIS 132 Introduction to Computer Forensics**

4 cr. hrs. 4 periods (4 lec.)

Introduction to computer forensics which focuses on methods of detection and prevention of computer crime. Includes multidisciplinary nature of computer forensics, professional opportunities, computer investigations, operating systems introduction, the investigator's office and laboratory, forensic tools, and digital evidence controls. Also includes processing crime and incident scenes, data acquisition, computing forensic analysis, e-mail investigations, recovering image files, investigative report writing, and expert witness testimony.

**Recommendation:** Basic knowledge of computers and how to download and install software is recommended before enrolling in this course.

Offered: Fall.

**CIS 133 Fundamentals of Personal Computer Security**

3 cr. hrs. 3 periods (3 lec.)

Introduction to Personal Computer (PC) security and how to protect from outside threats. Includes an overview of cyber crime and security issues, networks and the Internet, assessing a personal computer system, denial of service attacks, malware, basics of securing a PC system, and data encryption. Also includes Internet fraud and security, examples of espionage in cyberspace, cyber detective work, and computer security hardware and software.

**Recommendation:** Completion of CIS 100 and familiarity with the Internet are recommended before enrolling in this course.

Offered: Fall, Spring.

**CIS 136 Microcomputer Components**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Principles, tools, and history of the UNIX and Linux operating systems. Includes user utilities and some option switches, file structure and file names, regular expressions and extended regular expressions, shells, text editing, networking, and UNIX and Linux system administration.

**Recommendation:** Completion of CIS 100 before enrolling in this course.

Offered: Fall, Spring, Summer.

**CIS 141 Introduction to VB.NET**

4 cr. hrs. 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, Spring, Summer.

**CIS 142 Introduction to C#**

4 cr. hrs. 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: Fall, Spring.

**CIS 162 Database Design and Development**

3 cr. hrs. 3 periods (3 lec.)

Introduction to database concepts and terminology. Includes file systems and databases, the relational database model, entity relationship modeling, normalization, and database design.

Offered: Fall.

**CIS 170 CISCO I: Networking Fundamentals**

5 cr. hrs. 5 periods (5 lec.)

Introduction to the fundamentals of networking. Includes network concepts, the Open Systems Interconnection (OSI) model, binary numbering system, network architecture, Local Area Network (LAN) design and installation, and Cisco troubleshooting procedures. Also includes preparation for Cisco certification examination.

**Prerequisite(s):** CIS 136.

**Recommendation:** Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring, Summer.

**CIS 171 CISCO II: Networking Router Technologies**

5 cr. hrs. 5 periods (5 lec.)

Introduction to the fundamentals of networking router technologies. Includes networking concepts, Open Systems Interconnection (OSI) model, Local Area Network (LAN) technologies, routing protocols, router configuration files, and Cisco troubleshooting procedures. Also includes preparation for the Cisco certification exam.

**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 cr. hrs. 5 periods (5 lec.)

Development of skills to configure advanced routing protocols. Includes Local Area Network (LAN) switching, Virtual LAN (VLAN), LAN design, routing protocols, access lists, and Novell Internetwork Packet Exchange (IPX) protocol. Also includes preparation for the Cisco certification exam.

**Prerequisite(s):** CIS 171.

**Recommendation:** Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring.

**CIS 173 CISCO IV: Project Based Learning**

5 cr. hrs. 5 periods (5 lec.)

Design and configuration of advanced Wide Area Network (WAN) projects using Cisco IOS command set. Includes WAN design, Point-to-Point Protocol (PPP), integrated Services Digital Network (ISDN), and frame relay. Also includes preparation for Cisco certification examination.

**Prerequisite(s):** CIS 172.

**Recommendation:** Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring.

**CIS 182 Introduction to ANSI SQL**

3 cr. hrs. 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 joints, 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.

Offered: Fall, Spring.

**CIS 187 Data Processing Projects I**

1-3 cr. hrs. 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: May not be offered this year, check class schedule.

**CIS 199 Introductory Co-op: Computer Information Systems**

1 cr. hrs. 1 periods (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). Includes communication skills, time and energy management, stress and its management, careers: information and its uses, job market, principles, theories, and practices in the career field, and problems in the work situation.

**Corequisite(s):** CIS 199WK

*Information: May be taken two times for a maximum of two credit hours.*

Offered: May not be offered this year, check class schedule.

**CIS 199WK Introductory Co-op Work: Computer Information Systems**

1-8 cr. hrs. 5-40 periods (5-40 lab)

A supervised cooperative work program for students in related occupation area. Teacher-coordinators work with students and their supervisor. Variable credit is available by special arrangement.

**Corequisite(s):** CIS 199

*Information: May be taken two times for a maximum of sixteen credit hours.*

Offered: May not be offered this year, check class schedule.

**CIS 220 Novell NetWare Networking and Administration**

4 cr. hrs. 4 periods (4 lec.)

Administration of microcomputer networks using Novell NetWare. Includes review of networking concepts, defining network objects through directory services, designing the network file system, installing NetWare operating system and workstation client software, managing users, and installing printing. Also includes implementing electronic messaging, designing and implementing login scripts, implementing menus system, and managing the network.

**Prerequisite(s):** CIS 119.

**Recommendation:** Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring.

**CIS 221 Microsoft Windows Server**

4 cr. hrs. 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 cr. hrs. 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 cr. hrs. 4 periods (4 lec.)

Knowledge and skills to install, configure, and administer Microsoft Windows Active Directory 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 cr. hrs. 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 cr. hrs. 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, SAMBA file and print server, Apache web server, and file transfer protocol (FTP).

**Prerequisite(s):** CIS 137.

Offered: Fall, Spring, Summer.

**CIS 226 Advanced Linux Networking**

4 cr. hrs. 4 periods (4 lec.)

Advanced concepts in Linux and UNIX networking. Includes background review, basic Linux installation, Network File System (NFS) configuration, Network Information System (NIS) configuration, squid proxy, firewalls, and Lightweight Directory Access Protocol (LDAP).

**Prerequisite(s):** CIS 225.

Offered: Fall, Spring.

**CIS 228 Fundamentals of Network Security**

4 cr. hrs. 4 periods (4 lec.)

Introduction and general 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: Summer.

**CIS 229 Protecting Your PC and Network: CounterMeasures to Network**

4 cr. hrs. 4 periods (4 lec.)

Intrusion Introduction to networking vulnerabilities within various protocols and operating systems. Includes an overview of cyber crime and security issues, networks and the Internet, assessing and securing a personal computer (PC) system, denial of service attacks, malware, and data encryption. Also includes Internet fraud and security, espionage in cyberspace, cyber detective work, and computer security hardware and software.

**Recommendation:** Completion of CIS 119 or 170, and 228 before enrolling in this course.

Offered: Spring.

**CIS 235 Advanced Topics in Linux/Unix Security**

4 cr. hrs. 4 periods (4 lec.)

Overview for intermediate users of Linux and Linux administrators focusing on security issues. Includes background review, discovering network vulnerabilities, vulnerability mitigation, management awareness, intrusion detection, data gathering, and WiFi.

**Recommendation:** Completion of CIS 225 is recommended before enrolling in this course.

Offered: Fall.

**CIS 241 Advanced Visual Basic.NET Programming**

4 cr. hrs. 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, and introduction and advanced VB.NET applications.

**Prerequisite(s):** CIS 141.

Offered: Spring.

**CIS 250 Introduction to Assembly Language**

3 cr. hrs. 3 periods (3 lec.)

Beginning assembly language programming. Includes number systems, machine architecture, program design, the assembler, the stack, array processing and indexing, and sorting. Also includes program debugging and testing, performance issues, program profiling, and programmer productivity issues.

**Prerequisite(s):** CIS 131.

**Recommendation:** Consult instructor for alternative prerequisites before enrolling in this course.

Offered: Fall, Spring.

**CIS 265 The C Programming Language**

4 cr. hrs. 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.

**Prerequisite(s):** CIS 250 or concurrent enrollment.

Offered: Fall, Spring.

**CIS 266 CGI Programming with PERL**

3 cr. hrs. 3 periods (3 lec.)

Development of Common Gateway Interface (CGI) scripts using Practical Extraction and Report Language (Perl). Includes review of Internet technology and web-based services, review of HyperText Markup Language (HTML), introduction to CGI, server side includes, the Perl language, and client-server interaction. Also includes providing predictable web service, form processing, processing cookies, and Perl CGI debugging.

**Prerequisite(s):** CIS 121, 265.

Offered: May not be offered this year, check class schedule.

**CIS 269 Data Structures**

5 cr. hrs. 5 periods (5 lec.)

Advanced topics in computer science and programming in C++. Includes software engineering concepts and theory, memory management, inheritance, overloading, abstract classes, review of C++, stacks, queues, recursion, and dynamic abstract data structures. Also includes templates, hash tables, sort and search algorithms, file handling and streams, trees, graphs and networks.

**Prerequisite(s):** CIS 278.

Offered: Spring.

**CIS 273 Advanced Web Development**

4 cr. hrs. 4 periods (4 lec.)

Advanced web development including design and implementation of database web application. Includes review of Hypertext Markup language (HTML), Visual InterDev environment, design considerations for web development, introduction to vbScript, JavaScript and Common Gateway Interface (CGI), client-side scripting and validation, script objects and events, use of Java Applets, and use of Active X components. Also includes Dynamic Hypertext Markup Language (DHTML), Cascading Style Sheets (CSS), active server pages and server-side scripting, use of databases with ActiveX Data Objects (ADO), various database types, security issues, and debug and deploy application.

**Prerequisite(s):** CIS 121.

Offered: Spring.

**CIS 278 C++ and Object-Oriented Programming**

4 cr. hrs. 4 periods (4 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.

*Information: Completion of CIS 265 or consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring.

**CIS 279 Java Programming**

5 cr. hrs. 5 periods (5 lec.)

Introduction to Object Oriented Programming (OOP) using the Java programming language. Includes writing stand-alone programs and applets. Also includes strings, files, exception processing and threads.

**Recommendation:** Completion of CIS 265 or minimum of one year of C programming experience before enrolling in this course.

Offered: Fall, Spring.

**CIS 280 Systems Analysis and Design: Concepts and Tools**

4 cr. hrs. 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, Spring.

**CIS 281 Systems Analysis and Design: Applications**

3 cr. hrs. 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, Spring.

**CIS 299 Advanced Co-op: Computer Information Systems**

1 cr. hrs. 1 periods (1 lec.)

See Cooperative Education (CED) section for description.

**Corequisite(s):** CIS 299WK

*Information: May be taken two times for a maximum of two credit hours.*

Offered: Spring.



**CIS 299WK Adv Co-op Work: Computer Information Systems**

1-8 cr. hrs. 5-40 periods (5-40 lab)

Advanced Co-op Work: Computer Information Systems See Cooperative Education (CED) section for description.

**Corequisite(s):** CIS 299

*Information: May be taken two times for a maximum of sixteen credit hours.*

Offered: Spring.

## Computer Software Applications

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CSA 089 Beginning Computer Skills**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Beginning approach to operating a computer with a focus on basic computer skills and computer terminology. Includes Windows basics, Internet basics, fundamentals of Pima Community College web site and MyPima, email basics, and basic word processing skills.

Offered: Fall, Spring, Summer.

**CSA 100 Computer Literacy**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Overview of computer applications and functions. Includes 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 cr. hrs. 4 periods (2 lec., 2 lab)

Overview of computer applications and functions. Includes historical significance of the computer, Internet fundamentals, components of a computer system, spreadsheet, database, and word processing use within a workplace.

**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 Computer Communications and Systems for Business**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Overview of computer operating procedures. Includes hardware; software; the Internet and World Wide Web; communications, networks, and servers; database management; computer ethics and issues; information system development; and computer careers.

**Prerequisite(s):** CSA 101.

Offered: Fall, Spring, Summer.

**CSA 110 Spreadsheets: Microsoft Excel**

3 cr. hrs. 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. Also includes Excel lists, managing multiple worksheets and workbooks, collaborating on a workbook, 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 Compass Mathematics assessment test, completion of CSA 089 or basic computer skills, completion of REA 091 or required score on the Compass Reading assessment test before enrolling in this course.*

Offered: Fall, Spring, Summer.

**CSA 110A Spreadsheets: Microsoft Excel Module A**

1 cr. hrs. 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 cr. hrs. 1.34 periods (.67 lec., .67 lab)

Continuation of CSA 110A. Includes spreadsheet applications using Microsoft Excel at the intermediate level. Also includes Excel Lists, managing multiple worksheets and workbooks, collaborating on a workbook, 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 cr. hrs. 1.32 periods (.66 lec., .66 lab)

Continuation of CSA 110B. Includes spreadsheet applications using Microsoft Excel at the advanced level. Also 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 cr. hrs. 4 periods (2 lec., 2 lab)

Word processing techniques using Microsoft Word create, compare, and manage a range of documents. Includes application of templates, themes, styles, mail merge, web pages, macros, tables, forms, cross references, and indexes.

**Recommendation:** CSA 089 or basic computer skills, completion of REA 091 or satisfactory score on the reading assessment test. OAP 111A or keyboarding by touching at 30 wpm.

Offered: Fall, Spring, Summer.

**CSA 120A Word Processing: Word Module A**

1 cr. hrs. 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:** CSA 089 or basic computer skills, completion of REA 091 or reading assessment at REA 112.

*Information:* CSA 120A, 120B, and 120C together constitute CSA 120.

Offered: Fall, Spring, Summer.

**CSA 120B Word Processing: Word Module B**

1 cr. hrs. 1.34 periods (.67 lec., .67 lab)

Microsoft Word at an intermediate level. Includes templates, themes and styles, mail merge, document comparison and collaboration, and web page creation.

**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 cr. hrs. 1.32 periods (.66 lec., .66 lab)

Microsoft Word at an advanced level. Includes macros, advanced table techniques, forms, cross references, and indexes.

**Prerequisite(s):** CSA 120B.

*Information:* CSA 120A, 120B, and 120C together constitute CSA 120.

Offered: Fall, Spring, Summer.

**CSA 130 PowerPoint**

3 cr. hrs. 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:** CSA 089 or basic computer skills, completion of REA 091 or satisfactory score on the reading assessment.

*Information:* CSA 130A, 130B, and 130C together constitute CSA 130.

Offered: Fall, Spring, Summer.

**CSA 141 Integrated Office Suite**

4 cr. hrs. 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 152 Internet Browser: Microsoft Explorer**

2 cr. hrs. 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: May not be offered this year, check class schedule.

**CSA 152A Internet Browser: Microsoft Explorer Module A**

1 cr. hrs. 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.

**CSA 152B Internet Browser: Microsoft Explorer Module B**

1 cr. hrs. 1.5- periods (.5 lec., 1 lab)

Continuation of CSA 152A. Includes fundamentals of Microsoft Internet Explorer at the intermediate level. Also includes locating information resources on the Web, communication and file transferring using the Internet, using 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 Expression Web**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Web site concepts and design using Microsoft Expression Web. Includes web site concepts, web site development, creating and editing web content, using Cascading Style Sheets, optimizing the web site, dynamic web templates and scripting, and legal and usability issues.

**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 159 Introduction to Web Pages Using Dreamweaver**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to web site concepts in a Microsoft Windows environment using Dreamweaver. Includes the principles behind HyperText Markup Language (HTML), Extensible HyperText Markup Language (XHTML), and Cascading Style Sheets (CSS). Also includes the creation and formatting of web pages and inclusion of graphic elements, images, tables, links, forms, layout and printing of web pages.

**Recommendation:** Completion of CSA 101 prior to enrolling in this course.

Offered: Fall, Spring.

**CSA 167 Fireworks for Microsoft Windows**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction 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 and 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, Summer.

**CSA 168 Flash for Microsoft Windows**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**CSA 169 Dreamweaver Planning and Search Engine Optimization**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Advanced web site concepts in the Microsoft Windows environment using Dreamweaver. Includes how to identify the audience, planning web pages, and web site accessibility. Also includes search engine optimization and preparing a site to be seen on search engines.

**Recommendation:** Completion of CSA 101 before enrolling in this course.

Offered: Fall, Spring, Summer.

**CSA 170 Database: Access**

3 cr. hrs. 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, and 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: May not be offered this year, check class schedule.

**CSA 170A Database: Access Module A**

1 cr. hrs. 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, and 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: May not be offered this year, check class schedule.

**CSA 170B Database: Access Module B**

1 cr. hrs. 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:* May not be offered this year, check class schedule.

**CSA 170C Database: Access Module C**

1 cr. hrs. 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:* May not be offered this year, check class schedule.

**CSA 182 Microsoft Windows: Current Version**

3 cr. hrs. 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 cr. hrs. 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.

**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 182A, 182B, and 182C together constitute CSA 182.

*Offered:* May not be offered this year, check class schedule.

**CSA 182B Microsoft Windows: Current Version Module B**

1 cr. hrs. 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:* May not be offered this year, check class schedule.

**CSA 182C Microsoft Windows: Current Version Module C**

1 cr. hrs. 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:* May not be offered this year, check class schedule.

**CSA 207 Microsoft Publisher**

3 cr. hrs. 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:* May not be offered this year, check class schedule.

**CSA 210 Microsoft Excel Fundamentals**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Basic and intermediate functions and features 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.

*Information: Completion of CSA 089, CSA 100, or basic computer skills, and completion of REA 091 or testing above REA 091 on the Reading assessment test before enrolling in this course.*

Offered: Fall, Spring, Summer.

## Cooperative Education

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CED 199 Co-Op: Liberal Arts**

1 cr. hrs. 1 periods (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). Includes communication skills, time and energy management, stress and its management, careers: information and its uses, job market, principles, theories, and practices in the career field, and problems in the work situation.

**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 cr. hrs. 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.

## Crime Scene Management

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CSM 100 Intro to Photography Equipment and Processing for Crime Scene Investigations**

1 cr. hrs. 1 periods (1 lec.)

Focus on developing skills in photographing a crime scene. Includes processing black and white films and paper. Also 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 cr. hrs. 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 cr. hrs. 1 periods (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.

**Prerequisite(s):** CSM 100.

Offered: Fall, Spring.

**CSM 103 Latent Processing**

1 cr. hrs. 1 periods (1 lec.)

Techniques involved in developing latent fingerprints. Includes physical characteristics, types of fingerprints, principles of fingerprinting, fingerprint collection, fingerprint surfaces, and the photography of latent prints.

Offered: Fall, Spring.

**CSM 104 Fingerprint Identification**

3 cr. hrs. 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 cr. hrs. .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 cr. hrs. .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 cr. hrs. .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.

## Culinary Arts

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**CUL 100 Culinary Bootcamp**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Intensive introduction to the fundamentals of cooking that covers kitchen operation and culinary techniques. Includes instruction in kitchen skills; equipment and utensils; use and storage of ingredients; and safety precautions. Also includes demonstrations of various cooking methods, such as dry heat cooking (roasting, grilling, sautéing, pan frying), moist heat cooking (braising, shallow poaching, deep poaching, steaming), baking (techniques and production), and sauce preparation. Also includes instruction in culinary and kitchen terminology.

*Information: Students who enter the AAS program in Culinary Arts may use this course as an elective.*

Offered: May not be offered this year, check class schedule.

**CUL 101 Principles of Restaurant Operations**

3 cr. hrs. 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: Fall, Spring.

**CUL 110 Food Service Nutrition**

2 cr. hrs. 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: Fall, Spring.

**CUL 115 Food Service Sanitation and Safety**

3 cr. hrs. 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 126 Applied Mathematics for Food**

1 cr. hrs. 1 periods (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 cr. hrs. 5 periods (1 lec., 4 lab)

Introduction to all facets of hot foods. Includes classic stocks; sauces; soups; liaisons such as roux and starches; cooking techniques; preparation of vegetables; and butchering.

**Corequisite(s):** CUL 150, CUL 160

Offered: Fall, Spring.

**CUL 140 Culinary Principles**

3 cr. hrs. 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**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Introduction to the fundamentals of Garde Manger. Includes care of equipment; knife skills; basic sandwiches; herbs and spices; salad greens; dressings (emulsified and non-emulsified); and commercial cooking techniques.

**Corequisite(s):** CUL 130, CUL 160

Offered: Fall, Spring.

**CUL 153 Cakes**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Introduction to the art of cake baking. Includes the ingredients, preparation, and baking of cakes. Also includes icings, decorations, and fillings.

Offered: May not be offered this year, see class schedule.

**CUL 156 Pies**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Introduction to the art of baking pies. Includes a variety of pastry dough, fillings, and other ingredients for creating pies and tarts. Also includes mixing; shaping; baking; and plating and presentation.

Offered: May not be offered this year, see class schedule.



**CUL 160 Bakery and Pastry Production I**

3 cr. hrs. 5 periods (1 lec., 4 lab)

A comprehensive introduction to preparing an array of baked goods and sweets. Includes yeast breads; quick breads; creams and custards; cakes; filling and frostings; cookies and brownies; elementary plating; and decorating and garnishing techniques. Also includes ingredients; bakery and pastry vocabulary; and safety and sanitation.

**Corequisite(s):** CUL 130, CUL 150

Offered: Fall, Spring.

**CUL 161 Cake Decorating and Candy Making**

3 cr. hrs. 5 periods (1 lec., 4 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 basic candies, including holiday treats.

Offered: May not be offered this year, check class schedule.

**CUL 162 Art of Chocolate**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Introduction to chocolate used in the culinary arts. Includes an introduction and history of chocolate; truffles, dough and batters; and molded and free form art work.

Offered: May not be offered this year, check class schedule.

**CUL 163 Sauces**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Concepts, skills, and techniques for sauce and stock creation. Includes preparation of stocks and sauces in a traditional manner and their uses in classic and contemporary kitchens. Also includes identification of and appropriate uses for liaisons.

Offered: May not be offered this year, check class schedule.

**CUL 166 Gluten-Free Baking**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Introduction to the art of gluten-free baking. Includes gluten-free breads, desserts, and pizza. Also includes mixing, shaping, baking, and plating and presentation.

Offered: May not be offered this year, see class schedule.

**CUL 168 Specialty and Hearth Breads**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Preparation, baking, and evaluation of specialty and hearth breads. Includes the evolution of bread products, bread preparation, and the proper use of flour and yeast. Also includes preparing a variety of classic artisan bread shapes, presenting attractive finished products, and judging the quality of finished breads. Also includes health and sanitation considerations in bread making.

*Information: Consent of Culinary Arts Department is required before enrolling in this course.*

Offered: Spring.

**CUL 170 Dining Room Operations**

2 cr. hrs. 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 cr. hrs. 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.

**CUL 185 Catering Operations**

2 cr. hrs. 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: Fall, Spring.

**CUL 199 Co-op: Culinary Arts**

1 cr. hrs. 1 periods (1 lec.)

See Cooperative Education section for description.

Offered: Fall, Spring.

**CUL 199WK Co-op Work: Culinary Arts**

1-3 cr. hrs. 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.

*Information: May be taken three times for a maximum of nine credit hours.*

Offered: May not be offered this year, check class schedule.

**CUL 230 Hot Foods II**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Continuation of preparation and service of hot food in a contemporary kitchen. Includes cooking techniques; contemporary sauce making; vegetables, grains, and starches; natural liaisons; food plating; and sanitation procedures and techniques.

**Prerequisite(s):** CUL 130.

**Corequisite(s):** CUL 250, CUL 260

Offered: Fall, Spring.

**CUL 251 International Cuisine: World of Flavor**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Concepts, skills, and techniques used to create global cuisine. Includes ingredients and foods from around the world. Also includes culinary techniques that incorporate culture and food traditions from Latin America, the Mediterranean, Europe, Asia, and the United States.

**Corequisite(s):** CUL 230, CUL 260

Offered: Fall, Spring.

**CUL 260 Bakery and Pastry Production II**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Advanced theory and practice of operating a bakery or pastry shop in a hotel or restaurant kitchen. Includes planning, ordering, and scheduling for bakery production; safety and sanitation; and bakery and pastry vocabulary. Also includes advanced yeast breads; classic French pastries; ice cream and frozen desserts; pastry assembly; pastry garnishes; and complex plated desserts.

**Prerequisite(s):** CUL 160.

**Corequisite(s):** CUL 230, CUL 251

Offered: Fall, Spring.

**CUL 261 Advanced Cake Decorating**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Advanced principles and methods of cake decorating. Includes advanced flower design, gum paste, airbrush, photo transfer, fondant, and chocolate artistry. Also includes advanced techniques for creating cakes for weddings and other special occasions.

**Prerequisite(s):** CUL 161.

Offered: Fall, Spring.

## Dance

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**DNC 107 Dance Conditioning**

2 cr. hrs. 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.

*Information: May be taken four times for a maximum of eight credit hours.*

Offered: Fall, Spring, Summer.

**DNC 130 Tap Dance I**

2 cr. hrs. 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, Spring.

**DNC 131 Tap Dance II**

2 cr. hrs. 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: May not be offered this year, check class schedule.

**DNC 150 Ballet I**

2 cr. hrs. 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, Summer.

**DNC 151 Ballet II**

2 cr. hrs. 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: Spring.

**DNC 152 Ballet III**

2 cr. hrs. 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: Fall.

**DNC 166 Modern Dance I**

2 cr. hrs. 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 cr. hrs. 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: Spring.

**DNC 168 Modern Dance III**

2 cr. hrs. 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: Fall.

**DNC 180 Choreography**

2 cr. hrs. 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 150 or 166 or 219.

*Information:* Prerequisites may be waived with consent of instructor.

*Information:* May be taken four times for a maximum of eight credit hours.

Offered: Spring.

**DNC 200 Dance Appreciation and History**

3 cr. hrs. 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 cr. hrs. 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: May not be offered this year, check class schedule.

**DNC 216 Teaching Methods for Dance II**

3 cr. hrs. 3 periods (3 lec.)

Instruction of how to teach dance to those from 9th grade through 12th grade. 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: May not be offered this year, check class schedule.

**DNC 219 Jazz Dance I**

2 cr. hrs. 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, Spring.

**DNC 220 Jazz Dance II**

2 cr. hrs. 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.

*Information:* May be taken four times for a maximum of eight credit hours.

Offered: Spring.

**DNC 221 Jazz Dance III**

2 cr. hrs. 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: Fall.

**DNC 230 Rhythms for Dance**

2 cr. hrs. 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 or 166 or 219.

Offered: Summer.

**DNC 269 Dance Production and Performance**

3 cr. hrs. 6 periods (6 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.

**Prerequisite(s):** DNC 150 or 166 or 219.

*Information: Consent of instructor is required before enrolling in this course.*

*Information: May be taken four times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

**DNC 280 Business for Dance Careers**

3 cr. hrs. 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: Fall.

**DNC 285 Technology for Dance**

2 cr. hrs. 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: May not be offered this year, check class schedule.

**DNC 296 Independent Studies in Dance**

1-3 cr. hrs. 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.*

*Information: 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 277*

**DAE 159 Introduction to Health Care for Dental Assisting**

2 cr. hrs. 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.

**Corequisite(s):** DAE 160, DAE 161, DAE 162, DAE 162LB, DAE 163, DAE 163LC, DAE 164, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 160 Orientation to Dental Care**

1 cr. hrs. 1 periods (1 lec.)

Overview of the field of dental care. Includes the profession of dentistry, areas of service, and ethics and jurisprudence.

**Corequisite(s):** DAE 159, DAE 161, DAE 162, DAE 162LB, DAE 163, DAE 163LC, DAE 164, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 161 Biomedical Dental Science**

3 cr. hrs. 3 periods (3 lec.)

The biosciences as they relate to the oral cavity. Includes anatomy, physiology, microbiology, oral pathology, and nutrition as each affects total dental health.

**Corequisite(s):** DAE 159, DAE 160, DAE 162, DAE 162LB, DAE 163, DAE 163LC, DAE 164, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 162 Dental Assisting I**

2 cr. hrs. 2 periods (2 lec.)

Principles and techniques of dental assisting. Includes tooth morphology, of human dentition, hand and rotary dental instruments and their use in various operative procedures, and chairside procedures.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162LB, DAE 163, DAE 163LC, DAE 164, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 162LB Dental Assisting I Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of DAE 162.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162, DAE 163, DAE 163LC, DAE 164, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 163 Oral Radiography**

2 cr. hrs. 2 periods (2 lec.)

Introduction to dental roentgenography as a diagnostic aid. Includes radiation protection, dental film, film processing, digital radiography, identification of anatomical landmarks for mounting and interpretation, exposure techniques, and principles of supplementary film.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162, DAE 162LB, DAE 163LC, DAE 164, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 163LC Oral Radiography Clinical Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Clinical Lab portion of DAE 163.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162, DAE 162LB, DAE 163, DAE 164, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 164 Dental Materials**

2 cr. hrs. 2 periods (2 lec.)

Chemical and physical properties of dental materials used in dental practice. Includes introduction to dental materials; preventive sealants and restorative materials; dental cements; impression materials; gypsum products; miscellaneous dental materials; and gold, non-precious alloys, and casting of metals.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162, DAE 162LB, DAE 163, DAE 163LC, DAE 164LB, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 164LB Dental Materials Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of DAE 164.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162, DAE 162LB, DAE 163, DAE 163LC, DAE 164, DAE 165, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 165 Dental Assisting Procedures I**

1 cr. hrs. 1 periods (1 lec.)

Techniques and procedures of chairside dental assisting. Includes dental equipment and room design, chairside assisting and team approach, procedures applied in clinical treatment, and computer systems and technology in the dental environment. Also includes the application of student supervised experience in performing dental assisting functions in the clinical setting on patients.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162, DAE 162LB, DAE 163, DAE 163LC, DAE 164, DAE 164LB, DAE 165LB

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 165LB Dental Assisting Procedures Clinical I**

1 cr. hrs. 4 periods (4 lab)

This is the clinical lab portion of DAE 165.

**Corequisite(s):** DAE 159, DAE 160, DAE 161, DAE 162, DAE 162LB, DAE 163, DAE 163LC, DAE 164, DAE 164LB, DAE 165

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**DAE 166 Dental Assisting II**

3 cr. hrs. 3 periods (3 lec.)

Principles and techniques of dental assisting. Includes pharmacology and therapeutics, techniques and procedures for emergency medical/dental care as applied to dental assisting, and dental office inventory control.

**Prerequisite(s):** DAE 159, 160, 161, 162/162LB, 163/163LC, 164/164LB, 165/165LB.

**Corequisite(s):** DAE 167, DAE 169LC

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Spring.

**DAE 167 Dental Assisting III**

3 cr. hrs. 3 periods (3 lec.)

Principles and techniques of dental practices management and oral health education as applied to dental assisting. Includes preventive dentistry in dental health education, dental office procedures, and summary and evaluation.

**Prerequisite(s):** DAE 159, 160, 161, 162/162LB, 163/163LC, 164/164LB, 165/165LB.

**Corequisite(s):** DAE 166, DAE 169LC

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Spring.

**DAE 169 Dental Assisting Procedures II**

.5 cr. hrs. .5 periods (.5 lec.)

Application and evaluation of skills acquired in a clinical environment. Includes specialty seminars and guest lecturers, rotations to specialty practices, first and second clinical externship rotation assignments, discussion and analysis of clinical externship, and evaluation process.

**Prerequisite(s):** DAE 159, 160, 161, 162/162LB, 163/163LC, 164/164LB, 165/165LC.

**Corequisite(s):** DAE 166, DAE 167, DAE 169LC

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Spring.

**DAE 169LC Dental Assisting Procedures Clinical II**

6 cr. hrs. 24 periods (24 lab)

This is the clinical lab portion of DAE 169.

**Prerequisite(s):** DAE 159, 160, 161, 162/162LB, 163/163LC, 164/164LB, 165/165LB.

**Corequisite(s):** DAE 166, DAE 167, DAE 169

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Spring.

## Dental Hygiene

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### DHE 101 Dental Hygiene I

2 cr. hrs. 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. Also includes 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, DHE 104, DHE 104LB, DHE 107, DHE 112, DHE 116, DHE 116LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

### DHE 101LC Dental Hygiene I Clinical

3 cr. hrs. 12 periods (12 lab)

This is the clinical lab portion of DHE 101.

**Corequisite(s):** DHE 101, DHE 104, DHE 104LB, DHE 107, DHE 112, DHE 116, DHE 116LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

### DHE 104 Dental and Oral Morphology

1 cr. hrs. 1 periods (1 lec.)

Form and function of primary and permanent dentition. Includes oral cavity proper, form, function and physiology, tooth identification, terminology, deciduous dentition morphology, occlusion, tooth anomalies, and root morphology.

**Corequisite(s):** DHE 101, DHE 101LC, DHE 104LB, DHE 107, DHE 112, DHE 116, DHE 116LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

### DHE 104LB Dental and Oral Morphology Lab

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of DHE 104.

**Corequisite(s):** DHE 101, DHE 101LC, DHE 104, DHE 107, DHE 112, DHE 116, DHE 116LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

### DHE 107 Oral Embryology and Histology

2 cr. hrs. 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.

**Corequisite(s):** DHE 101, DHE 101LC, DHE 104, DHE 104LB, DHE 112, DHE 116, DHE 116LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

### DHE 112 Preventive Dentistry

3 cr. hrs. 3 periods (3 lec.)

Introduction to dental disease and the promotion of dental health. Includes the role of dental hygienists as prevention specialists, clinical treatment theories, patient care readiness, dental disease, risk assessment, and oral hygiene instruction. Also includes dentin sensitivity, enamel demineralization and remineralization, chemotherapeutics, and tobacco cessation.

**Corequisite(s):** DHE 101, DHE 101LC, DHE 104, DHE 104LB, DHE 107, DHE 116, DHE 116LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.



**DHE 116 Oral Radiography**

2 cr. hrs. 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 101, DHE 101LC, DHE 104, DHE 104LB, DHE 107, DHE 112, DHE 116LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 116LC Oral Radiography Clinic**

1 cr. hrs. 4 periods (4 lab)

This is the clinical lab portion of DHE 116.

**Corequisite(s):** DHE 101, DHE 101LC, DHE 104, DHE 104LB, DHE 107, DHE 112, DHE 116

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 119 Periodontology**

2 cr. hrs. 2 periods (2 lec.)

Survey of periodontology comprised of the etiology, diagnosis, and prognosis of periodontal disease. Includes tissues and microscopic anatomy of the periodontium, historical background, causes, microbiology and classification of periodontal disease, local and systemic contributing factors, clinical assessment, radiographic analysis, and evidence-based periodontal care. Also includes decision making during treatment planning, nonsurgical and patient's role in periodontal therapy, maintenance therapy, and case studies, and research articles and applications.

**Prerequisite(s):** DHE 101, 101LC, 104, 104LB, 107, 112, 116, and 116LC.

**Corequisite(s):** DHE 120, DHE 122, DHE 132, DHE 132LB, DHE 150, DHE 150LB, DHE 150LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 120 Oral Pathology**

2 cr. hrs. 2 periods (2 lec.)

Overview of oral pathology which is the study of human disease as found within all of the tissues represented in the area of the oral cavity. Includes introduction to pathology, diagnostic methods, normal exam and variants of normal, inflammation and repair, physical/chemical injuries of the oral tissues, and immunity and autoimmune diseases. Also includes infectious diseases, developmental disorders, neoplasia, genetic disorders, and oral manifestations of systemic disease.

**Prerequisite(s):** DHE 101/101LC, 104/104LB, 107, 112, 116/116LC.

**Corequisite(s):** DHE 119, DHE 122, DHE 132, DHE 132LB, DHE 150, DHE 150LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 122 Pharmacology**

2 cr. hrs. 2 periods (2 lec.)

Introduction to the theory of pharmacology as it relates to dentistry. Includes drug action and handling, prescription writing, autonomic drugs, analgesics, antibacterial agents, anti-fungal, anti-viral, and anti-anxiety agents, and cardiovascular and psychotherapeutic agents. Also includes endocrine and hormonal drugs, anti-neoplastic and immunosuppressant agents, and respiratory, gastrointestinal, and emergency medications.

**Prerequisite(s):** DHE 101, 101LC, 104, 104LB, 107, 112, 116, and 116LC.

**Corequisite(s):** DHE 119, DHE 120, DHE 132, DHE 132LB, DHE 150, DHE 150LB, DHE 150LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 132 Dental Materials**

2 cr. hrs. 2 periods (2 lec.)

Chemical and physical properties of dental materials used in dental practice. Includes introduction to dental materials, preventive sealants and restorative materials, cements, impression materials, gypsum products, and miscellaneous dental materials. Also includes gold and gold casting procedures, whitening tray fabrication, and review of national board content relating to dental materials.

**Prerequisite(s):** DHE 101/101LC, 104/104LB, 107, 112, 116/116LC.

**Corequisite(s):** DHE 119, DHE 120, DHE 122, DHE 132LB, DHE 150, DHE 150LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 132LB Dental Materials Lab**

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of DHE 132.

**Prerequisite(s):** DHE 101/101LC, 104/104LB, 107, 112, 116/116LC.

**Corequisite(s):** DHE 119, DHE 120, DHE 122, DHE 132, DHE 150, DHE 150LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 150 Dental Hygiene II**

2 cr. hrs. 2 periods (2 lec.)

Continuation of DHE 101/101LC. Application of dental hygiene skills with a variety of clinical patients with simple dental hygiene care plans. Includes instrument review, evidence-based decision making and treatment planning, medical emergency management review, special needs patients, powered instruments, air powder polishing and stain removal, care of dental prostheses, advanced instrumentation and alternate fulcrums, tobacco cessation, subgingival irrigation, and antimicrobials. Also includes dental implant instruments, case studies, table clinics, and laboratory procedures.

**Prerequisite(s):** DHE101/101LC, 104/104LB, 107, 112, 116/116LC.

**Corequisite(s):** DHE 119, DHE 120, DHE 122, DHE 132, DHE 132LB, DHE 150LB, DHE 150LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 150LB Dental Hygiene II Lab**

.5 cr. hrs. 1.5 periods (1.5 lab)

This is the lab portion of DHE 150.

**Prerequisite(s):** DHE 101/101LC, 104/104LB, 107, 112, 116/116LC.

**Corequisite(s):** DHE 119, DHE 120, DHE 122, DHE 132, DHE 132LB, DHE 150, DHE 150LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 150LC Dental Hygiene II Clinical**

3 cr. hrs. 12 periods (12 lab)

This is the clinical lab portion of DHE 150.

**Prerequisite(s):** DHE101/101LC, 104/104LB, 107, 112, 116/116LC.

**Corequisite(s):** DHE 119, DHE 120, DHE 122, DHE 132, DHE 132LB, DHE 150, DHE 150LB

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 155LC Clinical Dental Hygiene Applications**

1-2 cr. hrs. 4-8 periods (4-8 lab)

Application of dental hygiene skills on a variety of patients with advanced beginner care plans at the advanced beginner level. Includes instrumentation and clinical procedures.

**Prerequisite(s):** DHE 119, 120, 122, 132/132LB, 150/150LB/150LC.

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

**DHE 160LC Clinical Skills Enhancement I**

.25-2 cr. hrs. 1-8 periods (1-8 lab)

A clinical remediation course designed to support identified first year dental hygiene students who are performing at or below clinic course expectations. Includes education plan, development of individualized clinical remediation plan, and assessment.

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

**DHE 196 Independent Studies in Dental Hygiene**

1-4 cr. hrs. 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.*

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

*Information: May be taken two times for a maximum of eight credit hours.*

Offered: Fall, Spring.

**DHE 208 Pain and Anxiety Control for Dental Hygiene**

1 cr. hrs. 1 periods (1 lec.)

Delivery of local anesthetics. Includes introduction to pain and anxiety control, pharmacology, neurophysiology, and local anesthetic agents, nitrous oxide and oxygen analgesia, health history and complications, treatment, laboratory practices on student partners, emergency procedures, and head and neck anatomy.

**Prerequisite(s):** DHE 119, 120, 122, 132/132LB, 150/150LB/150LC.

**Corequisite(s):** DHE 208LC, DHE 209, DHE 250, DHE 250LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 208LC Pain and Anxiety Control for Dental Hygiene Clinical**

1 cr. hrs. 4 periods (4 lab)

This is the clinical lab portion of DHE 208.

**Prerequisite(s):** DHE 119, 120, 122, 132/132LB, 150/150LC.

**Corequisite(s):** DHE 208, DHE 209, DHE 250, DHE 250LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 209 Ethics and Practice Management**

1 cr. hrs. 1 periods (1 lec.)

Ethical theories and ethical principles and their application to the practice of dental hygiene. Includes the business the dentistry, dental hygiene career opportunities, ethics, and jurisprudence.

**Prerequisite(s):** DHE 155LC.

**Corequisite(s):** DHE 208, DHE 208LC, DHE 250, DHE 250LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 212 Nutrition for Oral Health**

1 cr. hrs. 1 periods (1 lec.)

Introduction of the principles of nutrition including food sources, digestion, absorption, and metabolism of nutrients essential to the oral health of individuals. Includes nutrition as the foundation for general and oral health, nutritional and oral implications of common chronic health conditions, carbohydrates, proteins, lipids and fats, minerals and mineralization, medications and oral health, and nutritional concerns for the dentally compromised patient.

**Prerequisite(s):** DHE 119, 120, 122, 132, 132LB, 150, 150LB, and 150LC.

**Corequisite(s):** DHE 208, DHE 208LC, DHE 209, DHE 209LC, DHE 250

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 213 Advanced Periodontal Services**

2 cr. hrs. 2 periods (2 lec.)

Application of Dental Hygiene skills on advanced periodontal patients. Includes periodontal exam and initial phase, treatment plan, periodontal classifications, plaque control, scaling and root planning indications and limitations, sonic and ultrasonic therapy in periodontal services, hand and powered instrumentation, and implant maintenance. Also includes occlusal evaluation and adjustment, assessment, reevaluation of treatment and maintenance, periodontal healing, antimicrobials and antibiotics, surgical procedures, and nonsurgical periodontal therapy.

**Prerequisite(s):** DHE 208, 208LC, 209, 212, 250, 250LC.

**Corequisite(s):** DHE 213CA, DHE 213CB, DHE 216, DHE 255, DHE 255LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 213CA Advanced Periodontal Services Clinical - A**

1 cr. hrs. 3 periods (3 lab)

This is the clinical lab part A portion of DHE 213.

**Prerequisite(s):** DHE 208, 208LC, 209, 212, 250, 250LC.

**Corequisite(s):** DHE 213, DHE 213CB, DHE 216, DHE 255, DHE 255LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

**DHE 213CB Advanced Periodontal Services Clinical - B**

1 cr. hrs. 4 periods (4 lab)

This is the clinical lab part B portion of DHE 213.

**Prerequisite(s):** DHE 208, 208LC, 209, 212, 250, 250LC.

**Corequisite(s):** DHE 213, DHE 213CA, DHE 216, DHE 255, DHE 255LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 216 Community and Dental Health Education**

3 cr. hrs. 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.

**Prerequisite(s):** DHE 208/208LC, 209, 250/250LC.

**Corequisite(s):** DHE 213, DHE 213CA, DHE 216CB, DHE 255, DHE 255LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Spring.

**DHE 250 Dental Hygiene III**

3 cr. hrs. 3 periods (3 lec.)

Continuation of DHE 150/150LC. Application of dental hygiene skills with a variety of clinical patients with dental hygiene care plans at the intermediate level. Includes dental hygiene theory and care, instrumentation, and care of patients with various physical disabilities.

**Prerequisite(s):** DHE 119, 120, 122, 132/132LB, 150/150LC.

**Corequisite(s):** DHE 208, DHE 208LC, DHE 209, DHE 250LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 250LC Dental Hygiene III Clinical**

4 cr. hrs. 16 periods (16 lab)

This is the clinical lab portion of DHE 250.

**Prerequisite(s):** DHE 119, 120, 122, 132/132LB, 150/150LC.

**Corequisite(s):** DHE 208, DHE 208LC, DHE 209, DHE 250

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 255 Dental Hygiene IV**

1 cr. hrs. 1 periods (1 lec.)

Continuation of DHE 250/250LC. Includes application of dental hygiene skills with a variety of clinical patients with dental hygiene care plans at the advanced level. Also includes national, regional, and state exam preparation, advanced instrumentation, and advanced ultrasonic inserts and techniques.

**Prerequisite(s):** DHE 208, 208LC, 209, 212, 250, and 250LC.

**Corequisite(s):** DHE 213, DHE 213CA, DHE 213CB, DHE 216, DHE 255LC

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 255LC Dental Hygiene IV Clinical**

3 cr. hrs. 12 periods (12 lab)

This is the clinical lab portion of DHE 255.

**Prerequisite(s):** DHE 208, 208LC, 209, 212, 250, and 250LC.

**Corequisite(s):** DHE 213, DHE 213CA, DHE 213CB, DHE 216, DHE 255

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall.

**DHE 260LC Clinical Skills Enhancement II**

.25-2 cr. hrs. 1-4 periods (1-4 lab)

A clinical remediation course designed to support identified second year dental hygiene students who are performing at or below clinic course expectations. Includes identification of need through clinical performance scores, development of individualized clinical remediation plan, and assessment.

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course. May be taken two times for a maximum of four credit hours.*

Offered: Fall.

**DHE 296 Advanced Independent Study: Dental Hygiene**

1-4 cr. hrs. 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.*

*Information: Students must be admitted to the PCC Dental Hygiene program and obtain consent of the Dental Hygiene department before enrolling in this course.*

Offered: Fall, Spring.

## Dental Laboratory Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**DLT 101 Dental Morphology**

2 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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: Fall.

**DLT 103 Complete Dentures**

1 cr. hrs. 1 periods (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, fabricating surgical templates, and denture repair and relines.

**Prerequisite(s):** DLT 101 or concurrent enrollment.

**Corequisite(s):** DLT 103LB

*Information: Consent of program director is required before enrolling in this course.*

Offered: Fall.

**DLT 103LB Complete Dentures Lab**

3 cr. hrs. 9 periods (9 lab)

This is the Lab portion of DLT 103.

**Corequisite(s):** DLT 103

Offered: Fall.

**DLT 104 Dental Occlusion**

2 cr. hrs. 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: Spring.

**DLT 104LB Dental Occlusion Lab**

2 cr. hrs. 6 periods (6 lab)

This is the Lab portion of DLT 104.

**Corequisite(s):** DLT 104

Offered: Spring.

**DLT 105 Partial Denture Construction**

1 cr. hrs. 1 periods (1 lec.)

Construction of removable partial dentures (RPDs). Includes evaluation and fabrication of preliminary impressions and models, model survey and RPD design, evaluation and fabrication of final impressions and master models, block out procedures, model duplication and refractory casts, creating wax patterns, spruing and investing frameworks, burnout and alloy casts, and recovery of RPD casting. Also includes metal finishing and polishing, occlusion rims, prosthetic tooth selection and tooth setting, processing and finishing the RPD, 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: Spring.

**DLT 105LB Partial Denture Construction Lab**

3 cr. hrs. 9 periods (9 lab)

This is the Lab portion of DLT 105.

**Corequisite(s):** DLT 105

Offered: Spring.

**DLT 106 Orthodontic Appliances**

2 cr. hrs. 2 periods (2 lec.)

Construction and theory of simple orthodontic 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, application of wire bending skills, fabrication of removable tooth retaining and moving appliances, and fixed space maintaining appliances.

**Prerequisite(s):** DLT 101 or concurrent enrollment.

**Corequisite(s):** DLT 106LB

*Information: Consent of program director is required before enrolling in this course.*

Offered: Spring.

**DLT 106LB Orthodontic Appliances Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of DLT 106.

**Corequisite(s):** DLT 106

Offered: Spring.

**DLT 108 Laboratory Management**

3 cr. hrs. 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 cr. hrs. 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: May not be offered this year, check class schedule.

**DLT 201LB Dental Laboratory I Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of DLT 201.

**Corequisite(s):** DLT 201

Offered: May not be offered this year, check class schedule.

**DLT 202 Dental Metallurgy**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**DLT 203 Fixed Bridgework**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.*

**DLT 203LB Fixed Bridgework Lab**

3 cr. hrs. 9 periods (9 lab)

This is the Lab portion of DLT 203.

**Corequisite(s):** *DLT 203*

*Offered: May not be offered this year, check class schedule.*

**DLT 204 Dental Laboratory II**

2 cr. hrs. 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 101/101LB, 104/104LB, 108, 201/201LB, 202, 203/203LB.*

**Corequisite(s):** *DLT 204LB*

*Information: Consent of program director is required before enrolling in this course.*

*Offered: May not be offered this year, check class schedule.*

**DLT 204LB Dental Laboratory II Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of DLT 204.

**Corequisite(s):** *DLT 204*

*Offered: May not be offered this year, check class schedule.*

**DLT 206 Dental Ceramics**

2 cr. hrs. 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; and building ceramic restorations. Also includes porcelain furnace operation, contouring fired porcelain, finishing, and soldering. Prerequisite(s): *DLT 101/101LB, 104/104LB, 108, 202, 203/203LB.*

**Corequisite(s):** *DLT 206LB*

*Information: Consent of program director is required before enrolling in this course.*

*Offered: May not be offered this year, check class schedule.*

**DLT 206LB Dental Ceramics Lab**

2 cr. hrs. 6 periods (6 lab)

This is the Lab portion of DLT 206.

**Corequisite(s):** *DLT 206*

*Offered: May not be offered this year, check class schedule.*

**DLT 207 Advanced Dental Laboratory Technology**

2 cr. hrs. 2 periods (2 lec.)

Application of dental laboratory techniques at the advanced level. Includes full dentures, partial dentures, crown and bridge, dental ceramics, and orthodontics.

**Prerequisite(s):** *DLT 101/101LB, 104/104LB, 108, 202, 203/203LB.*

**Corequisite(s):** *DLT 207LB*

*Information: Consent of program director is required before enrolling in this course.*

*Offered: May not be offered this year, check class schedule.*



**DLT 207LB Advanced Dental Laboratory Technology Lab**

3 cr. hrs. 9 periods (9 lab)

This is the Lab portion of DLT 207.

**Corequisite(s):** DLT 207

Offered: May not be offered this year, check class schedule.

## Digital Arts

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**DAR 051 Basic Macintosh for Computer Graphics**

1 cr. hrs. 2 periods (2 lab)

Introduction to the Macintosh computer environment. Includes operating system, techniques, document files, hardware, and document storage.

Offered: Fall, Spring.

**DAR 100 Fundamentals of Rendering**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Basic principles and methods of drawing as applied to digital and graphic design. Includes perspective, light sources, form, and textures.

Offered: Fall, Spring.

**DAR 101 Color Rendering and Theory**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Basic color theory and rendering principles as applied to digital and graphic design. Includes the proportion, form, contrast, and texture in the drawing of wood, food, paper, glass, metallic, landscape, and cloth items.

**Recommendation:** Completion of DAR 100 before enrolling in this course.

Offered: Fall, Spring.

**DAR 103 Introduction to Digital Arts**

3 cr. hrs. 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 111 Typography**

4 cr. hrs. 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**

4 cr. hrs. 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 cr. hrs. 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.

**Prerequisite(s):** DAR 103 or concurrent enrollment.

Offered: Fall, Spring.

**DAR 120 Applied Computer Graphics**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Introduction to current computer graphics software. Includes current software, desktop publishing documents, postscript illustration documents, painting or photo editing documents, file creation using computer software applications, computer graphics hardware, and professional environment.

Offered: Fall, Spring, Summer.

**DAR 122 DeskTop Graphics: Adobe Illustrator**

4 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Examining dramatic writing in visual mediums and creating the story for the screen. Includes visual storytelling, story structure, directors, cinematographers, and how screenwriters work. Also includes writing scenes, finishing stories, and writing for television.

**Prerequisite(s):** DAR 103.

*Information: Concurrent enrollment may be approved with instructor or department chair recommendation.*

Offered: Fall, Spring.

**DAR 125 Digital Video Production I**

3 cr. hrs. 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 digital video production team.

**Prerequisite(s):** DAR 115 and 124.

Offered: Fall, Spring.

**DAR 127 Sound Production for Radio**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Methods and techniques of the operation of radio broadcasting equipment. Includes the tools for sound production for radio, the console, turntables and compact disc (CD) players, tape recording and playback units, microphones and sound, techniques, applications, drama and dramatic elements, and commercial production. Also includes radio production news and public affairs programs; remote, sports, and advanced production; computer applications in radio; and production in modern format.

**Prerequisite(s):** DAR 103, 124.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: May not be offered this year, check class schedule.

**DAR 128 Digital Photography I**

4 cr. hrs. 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.

**Information:** 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. 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: May not be offered this year, check class schedule.

**DAR 140 Digital Arts Illustration Studio: Illustration Technique and Media**

4 cr. hrs. 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.

**DAR 145 Digital Arts Illustration Studio: Character Development for Animation and Print**

4 cr. hrs. 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 101.

Offered: Fall, Spring.

**DAR 146 Lighting for Photography I**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Introduction to creative professional lighting concepts and techniques for commercial and fine art photography. Includes lighting and studio equipment, light qualities, lighting for form, lighting for surface qualities, still-life photography, portrait photography, image composition, critical analysis, and portfolio.

**Prerequisite(s):** ART/DAR 128.

**Information:** Students are strongly recommended to own or have access to a digital camera with manual exposure control and a computer with image processing software. Professional quality cameras, computers and software, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. Same as ART 146.

Offered: Fall.

**DAR 173 History of American Cinema**

3 cr. hrs. 3 periods (3 lec.)

American cinematic film making as an art form, economic force, and system of representation and communication. Includes history of American cinema, development of the significant films and directors, film studios, and image, cinema genres, history of narrative film and film sounds, alternative American films, analysis and criticism, and American cinema team.

Offered: Fall, Spring, Summer.

**DAR 174 Business of Audio**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Economic, legal, and financial aspects of the music and recording industry. Includes recording artist contracts; foreign record deals; copyright in sound recordings; independent record producers; record clubs and premiums; labor agreements; music videos; record covers, label, and liner notes; and agents and managers. Also includes licensing of recordings for motion pictures; counterfeiting, piracy, and bootlegging; trade practice regulation; copyright in the United States; songwriter contracts; copyright infringement; and music and the movies.

**Prerequisite(s):** DAR 103, 124.

Offered: Fall, Spring.

**DAR 175 Cinematography**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Basic techniques of motion picture production. Includes operation and application of all basic film tools, equipment, and techniques used in cinema production. Also includes practical experience as part of the production team, pre-production, light and image, analysis of film technique, and post-production.

**Prerequisite(s):** DAR 103, 115, 124.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Fall, Spring.

**DAR 176 Digital Animation**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to digital animation techniques. Includes history of art animation, procedures in animated films, tools of animation, producing drawings, movement, realistic touches, technical information, and exaggerated action. Also includes the animal kingdom, dialogue, animated effects, use of digital technologies, and creation of a digital animation project.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Fall.

**DAR 177 Location Sound for Film and Video**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Theory and practice of sound recording on location for feature films, documentaries, video productions, and multimedia. Includes technical planning and sound design, miking speech, single camera applications, wireless microphones, combinations of microphones, stereo mixing on location, music in film and television, taping off the telephone, and tape presentation. Also includes electronic new gathering and field production, motion picture sound recording, digital audio tape versus analog recording devices, and techniques and aesthetic considerations.

**Prerequisite(s):** DAR 103, 124.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Fall.

**DAR 196 Digital Arts Independent Projects: Media Projects**

1-4 cr. hrs. 3-12 periods (3-12 lab)

Students independently continue their development in media communications with the help of a faculty member.

**Prerequisite(s):** DAR 103, 124, 125, 175.

*Information: Consent of instructor is required before enrolling in this course. May be taken three times of a maximum of twelve credit hours.*

Offered: Fall, Spring, Summer.

**DAR 205 Lighting for Film and Video**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Creative lighting techniques, practices, and use of equipment. Includes the visible spectrum, film and exposure, using electricity, video and the electronic medium, controlling color temperature, light quality, and measuring light intensity. Also includes manipulating light, light concepts in practice, and light in the studio and on location.

**Prerequisite(s):** DAR 124 and 125 or 175.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Spring.

**DAR 210 Digital Arts Design Studio: Advertising Design**

4 cr. hrs. 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 cr. hrs. 5 periods (3 lec., 2 lab)

Principles and techniques as applied to product design. Includes package design, card design, textile design, compact disc (CD) design, digital video disc (DVD) design, game design, and sign design.

**Prerequisite(s):** DAR 112.

Offered: Fall, Spring, Summer.

**DAR 212 Digital Arts Design Studio: Package Design**

4 cr. hrs. 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 and Portfolio**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Business techniques for the digital arts industry. Includes designer/client relationship, fee structures for designer services, documenting time, portfolio development, and advertising and promotion.

**Prerequisite(s):** DAR 103.

Offered: May not be offered this year, check class schedule.

**DAR 215 Advanced Cinematography**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Tools, techniques, and procedures involved in professional film production. Includes pre-planning a 16mm motion picture production, script breakdown, pre-production and post-production, budgeting, distribution, promotion, and developing a prospectus.

**Prerequisite(s):** DAR 175.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Fall.

**DAR 217 Post Production for Film**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Introduction to film post production video and audio techniques and aesthetics of film editing. Includes history of the art of film editing, preparing for the edit, tools of the editor, cutting techniques, and preparing for sound. Also includes sound, dialogue, looping, and music editing; the mix; and the answer print.

**Prerequisite(s):** DAR 215.

Offered: Spring.

**DAR 218 Introduction to Film Music**

3 cr. hrs. 3 periods (3 lec.)

Fundamental techniques applied to film music in motion pictures, television, video, and the new media. Includes the history of film music, the director and the producer, editing, the script, role models and temp tracks, spotting the film, budgets and schedules, developing the concept, timings and the cue sheet, composing, and recording. Also includes dubbing the final mix, electronic and contemporary scoring, scoring for different styles and genres, use of song in film, specialized themes, and the business of film scoring.

**Prerequisite(s):** DAR 103, 124.

*Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts faculty member for information.*

Offered: Fall, Spring.

**DAR 220 DeskTop Publishing for Digital Arts: QuarkXpress**

4 cr. hrs. 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: May not be offered this year, check class schedule.

**DAR 221 Photo Image Editing: Adobe PhotoShop**

4 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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: Spring.

**DAR 224 Advanced Screenwriting**

3 cr. hrs. 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, 124.

*Information: Prerequisites may be waived with experience in computer graphics. See a Digital Arts Arts faculty member for information.*

Offered: Spring.

**DAR 225 Digital Video Production II**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of DAR 125. Production of digital video projects. Includes professional digital video production, digital formats and scripting, production plan, utilization of digital camera and lighting equipment in remote and on-location sites, post-production, linear and non-linear editing equipment and approaches, editing and the visual storyline, and building a portfolio.

**Prerequisite(s):** DAR 125.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Spring.

**DAR 226 DeskTop Publishing for Digital Arts: Adobe InDesign**

4 cr. hrs. 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 cr. hrs. 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: Fall.

**DAR 230 Production Techniques for Print**

4 cr. hrs. 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 122, 220 or 226, and 221 or concurrent enrollment.

Offered: Fall.

**DAR 232 Digital Photography II**

4 cr. hrs. 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.

**Information:** Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments

**Information:** There may be additional supply costs in addition to course fees.

**Information:** The prerequisite(s) may be waived for basic skills in digital photography. See a DAR/ART digital photography instructor for prerequisite information.

Offered: Fall.

**DAR 233 Digital Photography III**

4 cr. hrs. 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 221 and DAR/ART 232.

**Information:** Same as ART 233.

**Information:** Students must own or have access to a digital camera with manual exposure control and a computer with image processing software. Professional quality cameras, printers, lighting equipment and studio will be provided for specific assignments.

**Information:** There may be additional supply costs in addition to course fees.

**Information:** The prerequisite(s) may be waived for basic skills in digital photography. See the ART/DAR instructor for prerequisite information.

Offered: Spring.

**DAR 235 Advanced Design and Production Applications**

4 cr. hrs. 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: Spring.

**DAR 236 Advanced Desktop Publishing**

4 cr. hrs. 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: May not be offered this year, check class schedule.

**DAR 240 Digital Arts Illustration Studio: Book Illustration**

4 cr. hrs. 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.

**DAR 246 Lighting for Photography II**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of ART/DAR 146. Includes lighting and equipment for studio and location, advanced lighting qualities and techniques, photographing with mixed light sources, lighting for mood and environment, set design and construction, photographing individuals and groups of people, photographing on location, photographing for montage images, advanced image composition, critical analysis, business practices, and portfolios.

**Prerequisite(s):** ART/DAR 146.

*Information: Students are strongly recommended to own or have access to a digital camera with manual exposure control and a computer with image processing software. Professional quality cameras, computers and software, printers, lighting equipment and studio will be provided for specific assignments. There may be additional supply costs in addition to course fees. Same as ART 246.*

Offered: Spring.

**DAR 250 Computer 2D Animation: Adobe After Effects**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Two dimensional animation on the computer. Includes storyboards, techniques and terms, logo animation, character animation, metamorphic animation, and production techniques.

**Prerequisite(s):** DAR 221 or 223.

*Information: Prerequisite(s) 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 cr. hrs. 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 221 or 250.

Offered: Fall, Spring.

**DAR 252 Dig Multimedia Design I: Flash**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Digital Multimedia Design I: Flash Basics of multimedia design using Adobe Flash. Includes using current multimedia authoring software, graphics, text, animation, sound, authoring, and publishing methods.

**Prerequisite(s):** DAR 051 or 120.

*Information: Experience in computer graphics may be substituted for some prerequisites. See a Digital Arts faculty member for information.*

Offered: Fall, Spring.

**DAR 254 Digital Multimedia Design II: Advanced Flash**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Advanced techniques in Adobe Flash and other multimedia software. Includes multimedia formats and components, creation process, production process, interactivity, Flash components and data binding, business and legal considerations, and marketing and distribution. Also includes embedding sound, graphics, and video into Flash; building interactions within timelines and ActionScripts; and integrating Flash content with web pages.

**Prerequisite(s):** DAR 252.

Offered: Fall.

**DAR 255 Television Commercial Design**

4 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**DAR 256 Web Design: Dreamweaver**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Design and production of web pages using Adobe Dreamweaver. Includes introduction to the World Wide Web, Dreamweaver software, Hypertext Mark-Up Language (HTML), home pages, links, uploading, multimedia, Cascading Style Sheets (CSS), and Web Site management.

**Prerequisite(s):** DAR 122, 221.

Offered: Fall, Spring.



**DAR 257 Advanced Web Design**

4 cr. hrs. 5 periods (3 lec., 2 lab)

Advanced design and production of web pages and sites. Includes planning and management, user interfaces, design, web site design with various multimedia elements, careers in World Wide Web, and interactive integration of forms and databases. Also includes advanced features of Adobe Dreamweaver and integration with Adobe Illustrator, Photoshop, Fireworks, and Flash.

**Prerequisite(s):** DAR 221, 256.

Offered: Spring.

**DAR 258 Advanced Computer 3D Animation: Maya**

4 cr. hrs. 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: Spring.

**DAR 261 Adobe Illustrator Seminar on the Macintosh**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

**DAR 262 QuarkXpress Seminar on the Macintosh**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

**DAR 263 Adobe Photoshop Seminar on the Macintosh**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

**DAR 265 Beginning Web Design Seminar on the Macintosh**

1 cr. hrs. 1 periods (1 lec.)

Design and production of graphics for the World Wide Web. Includes introduction to the World Wide Web, hardware, software, Extensible Hypertext Mark-Up Language (XHTML), 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 271 DeskTop Prepress Seminar on the Macintosh**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

**DAR 275 Basic Audio Production**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Fundamental tools, techniques, and procedures for multi-track recording. Includes elements of sound, sound studios, consoles, digital recorders, microphone application, and technical planning and sound design. Also includes on location versus studio recording, mixing and re-recording, and editing.

**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 cr. hrs. 6 periods (2 lec., 4 lab)

Production of audio for film, television, radio, and the recording industry. Includes the theoretical foundation of sound, field production recording, techniques involved in audio for video tape and film, and mixing boards and outboard devices. Also includes digital techniques and workstations, systems using both digital and analog devices, and current thought on recording techniques.

**Prerequisite(s):** DAR 275.

*Information: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Spring.

**DAR 277 Film/Video Production Financing**

3 cr. hrs. 3 periods (3 lec.)

Strategies to secure production financing for independent film/video projects. Includes fundable projects; research; proposal formats; granting, funding, and special program sources; and developing the project narrative. Also includes budgeting, distribution, promotion, and developing a complete prospectus for funding a media project.

**Prerequisite(s):** DAR 124.

Offered: Spring.

**DAR 285 Documentary Television and Film**

4 cr. hrs. 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: This course will require additional expenses for supplies in addition to course and lab fees.*

Offered: Spring.

**DAR 288 Digital Arts Business and Portfolio Capstone**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Production of professional quality digital arts portfolio with a focus on extended, in-depth study of the digital art industry and work environment. Includes professional design relationships, fee structures, documenting time, current digital arts tools and processes, interviews, and presentation of portfolios.

**Prerequisite(s):** DAR 111, 112, 122, 221, 226.

Offered: Fall, Spring.

**DAR 290E2 Digital Video and Film Arts Internship**

3 cr. hrs. 15 periods (15 lab)

Work environment in digital video and 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 cr. hrs. 15 periods (15 lab)

Work environment in 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/graphics instructor or department chair and 12 credit hours of DAR coursework is required to be placed in an internship position.*

Offered: May not be offered this year, check class schedule.

**DAR 296 Digital Arts Independent Projects**

1-4 cr. hrs. 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.*

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**DAR 29611 Digital Arts Independent Projects: Design**

1-4 cr. hrs. 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.*

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**DAR 29612 Digital Arts Independent Projects: Illustration**

1-4 cr. hrs. 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.*

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**DAR 29613 Digital Arts Independent Projects: Desktop Publishing**

1-4 cr. hrs. 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.*

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**DAR 29614 Digital Arts Independent Projects: Interactive Design**

1-4 cr. hrs. 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.*

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**DAR 29618 Digital Art Independent Projects: Advanced Digital Video/Audio/Film**

1-4 cr. hrs. 3-12 periods (3-12 lab)

Students independently continue their development in digital video, audio, and film media with the help of a faculty member.

*Information: May be taken three times for a maximum of twelve credit hours.*

*Information: Completion of twelve credit hours of DAR courses, DAR 196, and consent of instructor are required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**DAR 297 Digital Arts Seminar**

.25-4 cr. hrs. .25-4 periods (.25-4 lec.)

Digital Arts job-related training. Includes presentations and development of skills in a given area. May include special topics of timely or limited interest. Course content may be delivered all, or in part, via the web.

*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.

## Direct Care Professional

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**DCP 101 Direct Care Professional: Principles of Care Giving**

2.25 cr. hrs. 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: Spring.

**DCP 102 Direct Care Professional: Aging/Physical Disabilities**

2 cr. hrs. 2 periods (2 lec.)

Presents principles and applications of provision of care in the home environment for older adults and persons with disabilities. Addresses overview of services and continuum of care; aspects of independent living; and roles and responsibilities of Direct Care Professionals (DCPs). Also 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: Spring.

**DCP 103 Direct Care Professional: Alzheimer's/Forms of Dementia**

2 cr. hrs. 2 periods (2 lec.)

Presents principles and applications of provision of care in the home environment for persons with Alzheimer and related forms of dementia. Addresses an overview of services and continuum of care; aspects of independent living; and 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: Spring.

**DCP 104 Direct Care Professional: Developmental Disabilities**

2 cr. hrs. 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: Spring.

**DCP 190 Direct Care Professional Internship**

2 cr. hrs. 10 periods (10 lab)

Provides students with hands on-experiences at a direct care agency. Includes an orientation to working in a direct care agency; working with a developmentally/physically disabled population and the aging; professionalism in the direct care profession, and application of the principles of care giving through hands-on experience in the field. Also includes program administration; management, supervision and other oversight positions; office practices and computer applications for direct care; and funding sources for human service agencies and organizations.

**Prerequisite(s):** DCP 101, 102, and either 103 or 104.

*Information: Included in the 160 internship hours are 24 hours of classroom instruction; 1 credit hour is equal to 80 hours of contact time.*

*Information: Course is optional for program.*

Offered: May not be offered this year, check class schedule.

## Early Childhood Education

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**ECE 100 Introduction to the Child Care Profession**

2 cr. hrs. 2 periods (2 lec.)

Comprehensive employment preparation for clients referred by the Department of Economic Security (DES) and other individuals interested in the field of child care. Includes child development; positive discipline and guidance; language, literacy, math, and science development; and learning environments. Also includes licensing, health and safety, nutrition, children with disabilities, and handling child abuse.

Offered: Fall, Spring.

**ECE 107 Human Development and Relations**

3 cr. hrs. 3 periods (3 lec.)

Analysis of the elements that affect growth and development throughout the life span. Includes theories and global perspectives, prenatal development, oral language development, development within domains, parenting styles, death and dying, local and community influences, and theories in action.

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 108 Literature/Social Studies for Children**

3 cr. hrs. 3 periods (3 lec.)

Survey of principles, materials, and techniques for the selection and evaluation of children's literature and social studies materials. Includes history of children's literature, resources, evaluation, developing a professional portfolio, use of appropriate materials, alignment with national social studies standards, presentation techniques, and developmentally appropriate practices.

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall.

**ECE 110 Communication and Language: Early Literacy for Children**

3 cr. hrs. 3 periods (3 lec.)

Study of oral and written language acquisition and emergent literacy. Includes developmental theories, language integration, language rich environments, children's literature, and family involvement.

*Information: This course replaces CDA 141 and 225.*

*Information: ECE 110A and 110B together constitute ECE 110.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Spring.

**ECE 110A Communication and Language: Early Literacy for Children A**

1 cr. hrs. 1 periods (1 lec.)

Module A Study of oral and written language acquisition and emergent literacy. Includes the developmental theories of language and emergent literacy acquisition, the methods of language integration of literacy development across the curriculum, and how families and the community are and should be involved in children's literacy development.

*Information: ECE 110A and 110B together replace CDA 141 and 225.*

*Information: ECE 110A and 110B together constitute ECE 110.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring.

**ECE 110B Communication and Language: Early Literacy for Children B**

2 cr. hrs. 2 periods (2 lec.)

Module B Study of oral and written language acquisition and emergent literacy. Includes examination of emergent literacy acquisition and the developmental theories of language, development of language-rich environments that include second language acquisition, developmentally appropriate children's literature, and involving families and community in children's literacy development.

*Information: ECE 110A and 110B together replace CDA 141 and 225.*

*Information: ECE 110A and 110B together constitute ECE 110.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring.

**ECE 112 Music and Art for Children**

3 cr. hrs. 3 periods (3 lec.)

Survey of principles, materials, techniques, and resources for teaching music/art to children. Includes selection of appropriate materials and activities, integration with basic child development ages/stages, creating the appropriate environment, integration with other subject areas, and role of the teacher.

*Information: Students must have college-level reading and writing skills to be successful in all ECE classes.*

*Information: Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.*

*Information: ECE 112A and ECE 112B together constitute ECE 112.*

Offered: Fall, Spring.

**ECE 112A Music and Art for Children: Module A**

1 cr. hrs. 1 periods (1 lec.)

Survey of music and art for children. Includes selection of a variety of musical works from various cultures and artists, creation of a developmentally appropriate environment, integration of music activities into other curriculum areas, and examination of the role of the teacher in early education music programs.

*Information: This course replaces CDA 201.*

*Information: ECE 112A and 112B together constitute ECE 112.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

*Information: Requires a paid subscription to TaskStream electronic portfolio. Additional Fees apply.*

Offered: Fall, Spring, Summer.

**ECE 112B Music and Art for Children: Module B**

2 cr. hrs. 2 periods (2 lec.)

Survey of art and creative media for children. Includes selecting a variety of art and creative media from various cultures, the relation of the developing creativity of children to the whole child, the importance of the integration of art and creative media activities into various curricula areas, and the role of the teacher in creating a developmentally appropriate environment for young children.

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

*Information: Requires a subscription to TaskStream electronic portfolio. Additional fees apply.*

*Information: ECE 112A and 112B together constitute ECE 112.*

Offered: Fall, Spring, Summer.

**ECE 114 Effective Parenthood**

3 cr. hrs. 3 periods (3 lec.)

Identification and discussion of determinants of positive child rearing practices. Includes genetic factors, parental factors, healthy and safe environments, parental practices, communication, guidance, problem-solving, discipline techniques, challenges of parenting, and community resources.

**Prerequisite(s):** ECE 117.

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 115 Supervision and Administration of Early Childhood Programs**

3 cr. hrs. 3 periods (3 lec.)

Analysis of elements for planning, implementing, maintaining, and evaluating early childhood education programs. Includes program assessment, philosophy and mission statements, basic business operations, ethics, engaging stakeholders, regulating agencies, and child advocacy.

**Prerequisite(s):** MAT 082.

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 117 Child Growth and Development**

3 cr. hrs. 3 periods (3 lec.)

Analysis of the elements which affect growth and development pre-birth to age eight. Includes developmental theorists, roles of genetics, health and social influences, public policy issues, and domains of development.

*Information: A subscription to Task Stream is required for successful completion of this course.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 124 Math and Science for Children**

3 cr. hrs. 3 periods (3 lec.)

Theories, methods, and techniques for teaching math and science. Includes central concepts in math and science, communication skills, assessment, integration into other subject areas, teaching methods, and developmentally appropriate practices.

**Prerequisite(s):** MAT 082.

*Information: This course replaces CDA 142, 143, and 152.*

*Information: ECE 124A and 124B together constitute ECE 124.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring.

**ECE 124A Math and Science for Children: Module A**

2 cr. hrs. 2 periods (2 lec.)

Module A Study of theories, methods, and techniques for teaching math and problem solving. Includes central concepts in math and problem solving, communication skills, assessment, integration into other subject areas, teaching methods, and developmentally appropriate practices.

**Prerequisite(s):** MAT 082.

*Information: This course replaces CDA 142 and CDA 152.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

*Information: ECE 124A and 124B together constitute ECE 124.*

Offered: Fall, Spring.

**ECE 124B Math and Science for Children: Module B**

1 cr. hrs. 1 periods (1 lec.)

Module B Study of theories, methods, and techniques for teaching science. Includes central concepts in science, communication skills, assessment, and integration into other subject areas, teaching methods, and developmentally appropriate practices.

*Information: This course replaces CDA 143.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

*Information: ECE 124A and 124B together constitute ECE 124.*

Offered: Fall, Spring.

**ECE 125 Nutrition, Health, and Safety for the Young Child**

3 cr. hrs. 3 periods (3 lec.)

In-depth study of the health, safety and nutritional needs of children. Includes children's nutritional needs, caregiver responsibilities, food allergies, promoting healthy attitudes, illness prevention, record keeping, promotion of health and safety, safe environments, and community resources.

*Information: This course replaces CDA 104, 119, and 151.*

*Information: ECE 125A, 125B, and 125C together constitute ECE 125.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring.

**ECE 125A Nutrition, Health, and Safety for the Young Child: Module A**

1 cr. hrs. 1 periods (1 lec.)

In-depth study of the safety needs of children. Includes children's needs, caregiver responsibilities, illness prevention, record keeping, promotion of safety, safe environments, and community resources.

*Information: This course replaces CDA 104.*

*Information: ECE 125A, 125B, and 125C together constitute ECE 125.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 125B Nutrition, Health, and Safety for the Young Child: Module B**

1 cr. hrs. 1 periods (1 lec.)

In-depth study of the health needs of children. Includes children's needs, caregiver responsibilities, promoting healthy attitudes, illness prevention, record keeping, promotion of healthy environments, and community resources.

*Information: This course replaces CDA 119.*

*Information: ECE 125A, 125B, and 125C together constitute ECE 125.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 125C Nutrition, Health, and Safety for the Young Child: Module C**

1 cr. hrs. 1 periods (1 lec.)

In-depth study of the nutritional needs of children. Includes children's nutritional needs, caregiver responsibilities, food allergies, promoting healthy attitudes, and community resources.

*Information: This course replaces CDA 151.*

*Information: ECE 125A, 125B, and 125C together constitute ECE 125.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 129 Infant and Toddler Education**

3 cr. hrs. 3 periods (3 lec.)

Examination of effective teaching and guidance practices during infant and toddler years. Includes sensory motor development, development of coordination, object permanence, trial and error interactions, developmentally appropriate practice, guidance strategies, toilet training, physical settings, and observations and record keeping.

*Information: This course replaces CDA 129, 227, 228, and 235.*

*Information: ECE 129A and 129B together constitute ECE 129.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall.

**ECE 129A Infant and Toddler Education: Module A**

2 cr. hrs. 2 periods (2 lec.)

Module A examination of effective teaching and guidance practices during infant and toddler years. Includes developmentally appropriate practice, guidance strategies, toilet training, physical settings, and observations and record keeping.

*Information: This course replaces CDA 228 and 235.*

*Information: ECE 129A and 129B together constitute ECE 129.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Summer.

**ECE 129B Infant and Toddler Education: Module B**

1 cr. hrs. 1 periods (1 lec.)

Module B examination of effective teaching and guidance practices during infant and toddler years. Includes sensory motor development, development of coordination, object permanence, trial and error interactions, developmentally appropriate practice, and the physical settings.

*Information: This course replaces CDA 129 and 227.*

*Information: ECE 129A and 129B together constitute ECE 129.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Summer.

**ECE 190 Early Childhood Education: Theory to Practice**

4 cr. hrs. 16 periods (1 lec., 15 lab)

Practical experience in early child care and education. Includes developmentally appropriate practices, evaluation techniques, portfolio development, child advocacy, and self-evaluation. Also includes observation, assessment, documentation techniques, and 100 hours of documented work with children birth through prekindergarten.

**Prerequisite(s):** ECE 112, 117, 200 (or CDA102, 121, and 271), 226, 228, and 240.

*Information: An approved child development course may be used in place of ECE 117. Consent of instructor or program coordinator before enrolling in this course. A fingerprint clearance card, TB test, and certain immunizations are required. Students must have college-level reading and writing skills to be successful in ECE courses. Requires a subscription to TaskStream electronic portfolio. Additional fees apply. Prerequisites will be waived for students who have achieved a passing score on the Arizona Educator Proficiency Assessment test #36 (Early Childhood Education) and test #93 (Professional Knowledge-Early Childhood).*

Offered: Fall, Spring.

**ECE 200 Foundations of Early Childhood Education**

3 cr. hrs. 3 periods (3 lec.)

Includes a survey of the historical and philosophical foundations of Early Childhood Education. Also includes historical and contemporary influences, pedagogy, agency management of early childhood programs, early childhood assessment, and professional responsibilities.

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring.

**ECE 211 Inclusion of Young Children with Special Needs**

3 cr. hrs. 3 periods (3 lec.)

Overview of the exceptional learner (birth to age 8). Includes educational implication and service delivery, public policy, identification and assessment, specific areas of exceptionality, service plans, support systems for families, national, state and local responsibilities, early intervention, and observational records. Also includes field experience.

**Prerequisite(s):** ECE 117.

*Information: This course replaced ECE 111. Either ECE 111 or ECE 211 will meet the graduation requirement.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring.



**ECE 226 Teaching Techniques and Behavior Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction to theory and application of early childhood classroom planning, guidance techniques and classroom management. Includes application of developmental theories, developmentally appropriate practices, behavior management, cultural implications, teaching practices, professional development, and self-evaluation.

*Information: Includes a 22-hour practicum.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 228 The Young Child: Family, Culture, and Community**

3 cr. hrs. 3 periods (3 lec.)

Examination of the influences of family, culture and community on the development and learning of young children. Includes development of personal framework for understanding cultures; cultural differences in attitudes about play; age and cultural appropriateness of classroom materials; cross-cultural communication techniques; techniques for utilizing family strengths; strategies for involving families in the school and classroom; strategies for developing flexible response practices; and community project development.

*Information: A subscription to Task Stream is required for successful completion of this course.*

*Information: This course replaced ECE 128. Either ECE 128 or ECE 228 will meet the graduation requirement.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 240 Assessment of Young Children**

3 cr. hrs. 3 periods (3 lec.)

Assessment techniques associated with the evaluation of young children. Includes observation methods, interpreting assessment data, legal and ethical issues related to assessment, methods and strategies, and application of assessment data.

*Information: In order to be successful in all ECE classes.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

*Information: A subscription to TaskStream is required for successful completion of this course.*

Offered: Fall, Spring, Summer.

**ECE 260 Foundations and Variations in Early Child Development**

3 cr. hrs. 3 periods (3 lec.)

Typical and atypical child growth and development, birth through grade 3. Includes theoretical framework; brain development and effects of experience on brain development; prenatal, perinatal, and postnatal causes of disability; variations in development; healthy development; and intervention.

**Prerequisite(s):** ECE 117.

**Recommendation:** Completion of ECE 211 before enrolling in this course.

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 262 Early Childhood Special Needs Assessment Practices**

3 cr. hrs. 3 periods (3 lec.)

Examine various formal and informal assessment practices for children birth through age 8 who have or are at risk for special needs. Includes legal provisions governing assessment and service eligibility; common disabilities, delays and disorders; use, limitations, and procedural considerations of assessment; the role of family; formal and informal cognitive, skill, and behavior based tests; terms and scoring systems frequently utilized in assessments reports and measurements; use of screening tools and assessments; and intervention methods and models.

**Prerequisite(s):** ECE 117.

**Recommendation:** Completion of ECE 211 before enrolling in this course.

*Information: Students will be expected to complete 6 hours of fieldwork in inclusive classrooms.*

*Information: Students must have college-level reading and writing skills to be successful in ECE courses.*

Offered: Fall, Spring, Summer.

**ECE 264 Families and Professional Partnerships in ECSE**

3 cr. hrs. 3 periods (3 lec.)

Examine the importance of developing relationships between families of children birth through age 8 with special needs and the professionals who work with them. Includes theoretical and cultural influences; variables that impact family functioning and emotions; family-centered services; relationship-based practice; intervention teams and service locations; intervention plan requirements; and professional characteristics and responsibilities.

**Prerequisite(s):** ECE 117.

**Recommendation:** Completion of ECE 211 before enrolling in this course.

*Information:* Students will be expected to complete 10 hours of observation in inclusive classrooms.

*Information:* Students must have college-level reading and writing skills to be successful in ECE courses.

Offered: Fall, Spring, Summer.

**ECE 266 Curriculum Adaptation in the Inclusive Early Childhood Class**

3 cr. hrs. 3 periods (3 lec.)

Strategies to address the cognitive, communication, motor, personal-social and adaptive needs of children birth through age 8 with developmental delays or disabilities. Includes normal and exceptional development; legal, ethical, and functional roles of educators and service providers; partnerships with families; recognizing special needs that require adapted instruction; individual intervention plans; developing and coordinating services; designing and implementing curriculum modifications and instructional strategies in the inclusive classroom; promoting the development of social and emotional skills, motor skills, communication skills, and cognitive skills; and adaptive self-help and independence skills.

**Prerequisite(s):** ECE 117.

**Recommendation:** Completion of ECE 211 before enrolling in this course.

*Information:* Students will be expected to complete 15 hours of observation in inclusive classrooms.

*Information:* Students must have college-level reading and writing skills to be successful in ECE courses.

Offered: Fall, Spring, Summer.

**ECE 268 Strategies to Support Development in Inclusive Environments**

4 cr. hrs. 16 periods (1 lec., 15 lab)

Identifying and adapting instructional strategies to provide optimal support to individual children through age 8. Includes Developmentally Appropriate Practices (DAP) and Early Childhood Special Education (ECSE) best practices as a blended process; developing and nurturing the family-professional partnership; the role of assessments and progress monitoring for individualizing instructional strategies; designing, implementing, and assessing strategies for adaptive, language and communication, motor, cognitive, social, and emotional development; designing individual educational objectives for children who have needs in one or more domains of the Individuals with Disabilities Education Act; and analyzing one's professional development.

**Prerequisite(s):** ECE 117, 260, 262, 264, 266.

**Recommendation:** Completion of ECE 211 before enrolling in this course.

*Information:* Consent of instructor or program coordinator is required before enrolling in this course.

*Information:* A child development course may be used to substitute for ECE 117.

*Information:* A fingerprint clearance card and TB test are required.

*Information:* Students will be expected to complete 120 hours of documented field work in an early childhood special education inclusive setting.

*Information:* Students must have college-level reading and writing skills to be successful in ECE courses.

Offered: Fall, Spring, Summer.

## Economics

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### ECN 200 Basic Economic Principles

3 cr. hrs. 3 periods (3 lec.)

Examination of microeconomic and macroeconomic theory with economic decision making, economic systems, production possibilities model, and market analysis. Includes micro topics, such as consumer demand, producer supply, and overall price determination. Also includes macro topics, such as goals and problems of the macroeconomy, fiscal policy, budgets, the Federal Reserve, and monetary policy.

**Prerequisite(s):** MAT 092.

*Information:* Not open to students who have taken or are taking ECN 201 and/or ECN 202.

Offered: Fall, Spring, Summer.

### ECN 201 Microeconomic Principles SUN# ECN 2202

3 cr. hrs. 3 periods (3 lec.)

Economic theory as applied to individual decision-making units. Includes economic decision making, economic systems, production possibilities model, and market analysis. Also includes details of consumer demand with elasticity and utility maximization, producer supply with market structures and profit maximization, and overall price determination.

**Prerequisite(s):** MAT 092.

Offered: Fall, Spring, Summer.

### ECN 202 Macroeconomic Principles SUN# ECN 2201

3 cr. hrs. 3 periods (3 lec.)

Economic theory as applied to the operation of the economy as a whole. Includes economic decision making, economic systems, production possibilities model, and market analysis. Also includes goals and problems of the macroeconomy, foundations of the macroeconomy, fiscal policy, budgets, money, the role of financial institutions and the Federal Reserve, money creation, monetary theory and policy.

**Prerequisite(s):** MAT 092.

Offered: Fall, Spring, Summer.

### ECN 296 Independent Study in Economics

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Independent study projects or special interest areas in economics under the supervision of a faculty member.

**Prerequisites(s):** ECN 200, or ECN 201 and 202.

*Information:* May be taken two times for a maximum of six credit hours.

Offered: Fall, Spring, Summer.

## Education

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### EDU 103 Teaching Students with ADD/ADHD

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

### EDU 106 Structured English Immersion Introduction

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

**EDU 111 Comprehension Strategies for Struggling Adolescent Readers**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.*

**EDU 134 Survival Strategies for the Substitute Teacher**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.*

**EDU 138 Stress Management for Teachers**

1 cr. hrs. 1 periods (1 lec.)

Overview of teacher stress causes, effects, and interventions. Includes 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: May not be offered this year, check class schedule.*

**EDU 177 Motivating Students**

.25-1 cr. hrs. .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: May not be offered this year, check class schedule.*

**EDU 200 Introduction to Education**

3 cr. hrs. 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.*

*Information: May be taken for Professional Development purposes.*

*Offered: Fall.*

**EDU 201 Diversity in Education**

3 cr. hrs. 3 periods (3 lec.)

Examination of diversity: age, class, gender, race disabilities, sexual orientation, and culture effects 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.*

**EDU 202 Introduction to the Exceptional Learner**

3 cr. hrs. 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 cr. hrs. 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 included is 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 211 Meeting the Needs of Gifted Students**

1-3 cr. hrs. 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: May not be offered this year, check class schedule.

**EDU 240 Adolescent Development**

3 cr. hrs. 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; and psychosocial problems such as teen suicide, delinquency, and substance abuse. Also, includes ethnic and cultural considerations in addition to educational and vocational issues.

*Information: Post-Degree Teacher Certification Program approval before enrolling in this course. This course 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 cr. hrs. 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.*

*Information: Post-Degree Teacher Certification Program 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 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This course requires a 30-hour middle school practicum placement. Meets Middle School Endorsement requirements in conjunction with other coursework. May be taken for Professional Development purposes.*

Offered: Spring.

**EDU 243 ESL Practicum**

3 cr. hrs. 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 Second Language (ESL) and Sheltered English Instruction, teaching techniques and actual experience in developing lessons and teaching ELL.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 30-hour ESL K-12 practicum. May be taken for Professional Development purposes.*

Offered: Fall.

**EDU 244 Teaching Reading and Writing to ESL Students**

3 cr. hrs. 3 periods (3 lec.)

Introduction to teaching reading and writing in an English as a Second Language (ESL) setting. Includes teaching techniques, learning strategies and activities, and the six traits of writing, including reading and writing across the curriculum.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This course requires a 10-hour practicum. May be taken for Professional Development purposes.*

Offered: Spring.

**EDU 245 Linguistics**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 10-hour practicum. May be taken for Professional Development purposes.*

Offered: Spring.

**EDU 246 Assessment of ESL Students**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the assessment of English as a Second Language (ESL) students, including knowledge of assessment, purposes of assessment, identification, placement, exit standards for students, linking assessment to instruction, and creating classroom assessments.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 10-hour practicum. May be taken for Professional Development purposes.*

Offered: Fall.

**EDU 247 Family and Community Involvement in ESL Student Instruction**

3 cr. hrs. 3 periods (3 lec.)

Introduction to involving families, school, and community in English as a Second Language (ESL) student learning. Includes research on the value of family/school connections, an overview of effective programs, analysis of practices and resources available, and information on how to develop a school action plan for increasing family and community involvement.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This course requires a 10-hour practicum. May be taken for Professional Development purposes.*

Offered: Fall.

**EDU 252 Reading Diagnosis, Decoding, Remediation and Practicum**

3 cr. hrs. 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.

**Prerequisite(s):** EDU 276 and 277.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 10-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education office for specific information.*

Offered: May not be offered this year, check class schedule.

**EDU 254 Literacy Development in the Primary Grades/Practicum**

3 cr. hrs. 3 periods (3 lec.)

Philosophy, information and strategies for literacy development in the primary classrooms. Includes literacy and language development theories, observation and assessment, family literacy, strategies for teaching, and motivation and management.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 10-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information.*

Offered: Spring.

**EDU 255 Content Area Reading Middle and Secondary Schools/Practicum**

3 cr. hrs. 3 periods (3 lec.)

Information and strategies in content area literacy and its fundamental role in instruction across the curriculum. Topics include: 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 10-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information.*

Offered: Fall.

**EDU 256 Literacy Development in the Middle School/Practicum**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 10-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information.*

Offered: Spring.

**EDU 257 Special Topics: Children's Literature and Literacy/Practicum**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 10-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information.*

Offered: Spring.

**EDU 260 Developing Reading, Instruction, Assessment, and Remediation**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 15-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information. Requires a paid subscription to TaskStream electronic portfolio. Same as EDS260.*

Offered: May not be offered this year, check class schedule.

**EDU 268 Issues in Education**

1 cr. hrs. 1 periods (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: Post-Degree Teacher Certification Program approval is required before enrolling in this course.*

Offered: Fall.

**EDU 270 Educational Technology and Curriculum Integration**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio.*

Offered: Fall.

**EDU 271 Introduction to Teaching**

3 cr. hrs. 3 periods (3 lec.)

Introduction to teaching for the prospective teacher focusing on the major models of teaching, the purposes served and the curriculum methods employed with each model. Also includes legal and ethical issues, teaching as a profession, and strategies and practices for increasing instructional effectiveness.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio.*

Offered: Fall.

**EDU 272 Educational Psychology**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio.*

Offered: Spring.

**EDU 273 Introduction to Special Education**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval 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: Spring.

**EDU 274 Structured English Immersion Foundations**

3 cr. hrs. 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.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply. Meets SEI Endorsement requirements in conjunction with other coursework. Also meets Arizona Department of Education course requirements.*

Offered: Fall.

**EDU 275 Classroom Management**

3 cr. hrs. 3 periods (3 lec.)

Mastery of 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: Post-Degree Teacher Certification Program or Education Department approval is required before enrolling in this course. Requires a paid subscription to TaskStream electronic portfolio.*

Offered: Spring.

**EDU 276 Foundation of Reading Instruction**

3 cr. hrs. 3 periods (3 lec.)

Literacy instruction at the elementary school level. Includes literacy development theory; literacy development at the preschool, early childhood and intermediate grade level; instruction techniques for all facets of literacy development; and comprehension strategies, including bilingual learners and special populations. Also includes focus on organizing the classroom and curriculum to enhance literacy development, techniques and assessment as tools for instruction and working with parents to enhance student achievement.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 15-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information. Requires a paid subscription to TaskStream electronic portfolio.*

Offered: Fall.



**EDU 277 Phonics Instruction in a Balanced Literacy Setting/Practicum**

3 cr. hrs. 3 periods (3 lec.)

Overview and exploration of phonemic awareness, phonics instruction and related research findings. Includes quality literacy programming, understanding language and words, word study about letters and words, and thinking comprehensively.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 15-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information. Requires a paid subscription to TaskStream electronic portfolio.*

Offered: Spring.

**EDU 278 Elementary Science Methods and Curriculum Development**

3 cr. hrs. 3 periods (3 lec.)

Overview of the content and instructional methods of teaching science in kindergarten through eighth grade. Includes the academic content of teaching science, the instructional methods of teaching science, practical application, and observation and evaluation.

*Information: Post-Degree Teacher Certification Program approval 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 cr. hrs. 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: Post-Degree Teacher Certification Program approval 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 280 Social Studies Methods and Curriculum Development**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval 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 cr. hrs. 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: Post-Degree Teacher Certification Program approval 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. Also meets Arizona electronic portfolio. Additional fees apply. Meets ESL Endorsement requirements in conjunction with other coursework. Also meets Arizona Department of Education course requirements.*

Offered: Spring.

**EDU 285 Secondary Teaching Methods**

3 cr. hrs. 3 periods (3 lec.)

Introduction to a variety of relevant secondary instructional, classroom management, and assessment strategies. Includes the role and function of the teacher in a secondary classroom setting, preparing for instruction, developing lesson plans, designing assessments, delivering instruction, managing the classroom, working with instructional media, and assisting special needs students.

*Information: Post-Degree Teacher Certification Program approval 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 286 Structured English Immersion Methods (Completion)**

3 cr. hrs. 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: Post-Degree Teacher Certification Program approval is required before enrolling. This course is designed for currently practicing K-12 teachers and administrators. Meets SEI Endorsement requirements in conjunction with other coursework. Also meets Arizona Department of Education course requirements.*

Offered: Spring.

**EDU 287 Structured Engl Immersion Foundations(Augmented Provisional)**

3 cr. hrs. 3 periods (3 lec.)

Overview of Structured English Immersion (SEI) Foundations designed to meet state standards for pre- service and in-service teachers of English Language Learners (ELL). 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.

*Information: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This course is designed for currently practicing K-12 teachers and administrators. Meets SEI Endorsement requirements in conjunction with other coursework. Also meets Arizona Department of Education course requirements.*

Offered: Fall.

**EDU 290 Internship**

8 cr. hrs. 40 periods (40 lab)

Overview of the student teaching 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, teamwork, and professional development and evaluation.

*Information: Admission to the Post-Degree Teacher Certification Program and TPP Internship and Education department approval is required before enrolling in this course. EDU 290A, 290B, 290C, and 290D together constitute EDU 290.*

Offered: Fall, Spring.

**EDU 290A Internship I**

2 cr. hrs. 10 periods (10 lab)

Overview of the student teaching 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: Fall, Spring.

**EDU 290B Internship II**

2 cr. hrs. 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. 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.*

*Information: EDU 290A, 290B, 290C and 290D together constitute EDU290.*

Offered: Fall, Spring.

**EDU 290C Internship III**

2 cr. hrs. 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: Fall, Spring.

**EDU 290D Internship IV**

2 cr. hrs. 10 periods (10 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: Fall, Spring.

## Educational Technology Training

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**ETT 101 Introduction to Educational Technology**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**ETT 103 Introduction to the Internet in Education**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**ETT 110 Blackboard Vista Course Development and Delivery**

3 cr. hrs. 3 periods (3 lec.)

Overview, concepts, and techniques for online course preparation, delivery, and management using Blackboard Vista. Includes advanced web and Internet use, online course development, educational web site development, and use of Blackboard Vista, an online course development and management system.

*Information: ETT 101 and 103 or equivalent computer knowledge and experience are 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 277*

**EUT 101 Introduction to Electrical Utilities**

3 cr. hrs. 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, human resources, and system protection.

Offered: May not be offered this year, check class schedule.

**EUT 102 Electrical Distribution Math**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**EUT 104 Overhead and Underground Systems, Hardware, and Equipment**

4 cr. hrs. 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: May not be offered this year, check class schedule.

**EUT 106 Measuring Electricity**

3 cr. hrs. 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: May not be offered this year, check class schedule.

## Emergency Medical Technology

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**EMT 089 Skills Reinforcement for EMT 100**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Overview, techniques, and skills for pre-hospital emergency response. Includes equipment operations, communication, documentation, packaging, and patient assessment.

**Recommendation:** Concurrent enrollment in EMT 100.

*Information:* Course supplements lecture time and laboratory experience for EMT 100.

Offered: Fall, Spring, Summer.

**EMT 090 National Registry Skills Preparation**

.5 cr. hrs. .5 periods (.5 lec.)

Introduction to the practical portion of the EMT-B National Registry Skills stations. Includes introduction to the six stations required for EMT-B certification. Also includes opportunity to serve as a patient in medical and trauma scenarios, and to practice hands on assessment with other students.

**Recommendation:** Designed for students enrolling in EMT 100 the following semester.

*Information:* Prepares students to serve as patients for National Registry testing.

Offered: Fall, Spring, Summer.

**EMT 091 Ambulance Operations**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Practical experience and safe operation of emergency vehicles. Includes operating an ambulance on a closed course to become familiar with its handling and operations, and subsequent completion of an obstacle course similar to the Emergency Vehicle Operators Course. (EVOC). Also includes proper gurney operation and key safety matters pertaining to the use of lights and sirens.

**Recommendation:** Concurrent enrollment in EMT 100 or 110.

*Information:* Students must possess a valid driver's license.

Offered: Fall, Spring, Summer.

**EMT 092 Cardiac Monitor (EKG) for the EMT**

1.5 cr. hrs. 1.5 periods (1.5 lec.)

Introduction to the cardiac monitor or electrocardiograph (EKG). Includes an in-depth look at the cardiac monitor, the many different cardiac rhythms students may encounter as an EMT, and discussion of various treatments for abnormal rhythms.

**Corequisite(s):** Concurrent enrollment in EMT 100 or 110.

*Information:* Not a substitute for Advanced Cardiac Life Support (ACLS), but appropriate for entry level EMT students. Ideal exploration course for those considering a career beyond EMT, such as Paramedic or Nursing.

Offered: Fall, Spring, Summer.

**EMT 100 Basic Emergency Medical Technology**

12 cr. hrs. 14 periods (11 lec., 3 lab)

Techniques of pre-hospital emergency medical care for the emergency medical technician. Includes history of emergency medical care delivery systems, roles and responsibilities of EMS providers, ethical and legal issues, and patient assessment. Also includes symptoms of illnesses, injuries, medical emergencies, appropriate medical techniques, triage, and ambulance operations.

*Information: Students must be 18 years of age when class begins. Students must have CPR certification at the Healthcare Provider or Professional Rescuer Level and receive a minimum score of 80 on the Compass reading assessment. Students must show proof of personal medical insurance and provide immunization records for MMR, TD, TB skin Test, and Varicella. Students must provide a fingerprint card, submit to drug screening, and must meet with an advisor or EMT staff/faculty to complete a pre-enrollment worksheet prior to enrollment.*

Offered: Fall, Spring, Summer.

**EMT 110 First Responder**

3 cr. hrs. 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.

*Information: This course will prepare those wishing to enroll in EMT 100. We will cover the DOT curriculum for EMT as well as the National Registry Practical portion of EMT.*

Offered: Fall, Spring, Summer.

**EMT 111 Heartsaver First Aid Provider**

.5 cr. hrs. .5 periods (.5 lec.)

Beginning first aid concepts and techniques for the lay person. Includes principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with either medical or traumatic injuries and complaints. Includes: first aid general principles, medical, and trauma. Also includes topic options: adult Cardiopulmonary Resuscitation (CPR), Adult Automatic External Defibrillator (AED), and environmental emergencies.

*Information: The Heartsaver First Aid and CPR and AED Provider Manuals are required.*

Offered: May not be offered this year, check class schedule.

**EMT 112 Heartsaver Cardiopulmonary Resuscitation**

.5 cr. hrs. .5 periods (.5 lec.)

Concepts and techniques to assess and treat patients with airway obstruction, respiratory, and cardiac arrest for the lay person. Includes the integration of principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with foreign body airway obstruction, respiratory and/or cardiac arrest. Includes choice of two topics: Adult Cardiopulmonary Resuscitation (CPR) and Pediatric CPR.

*Information: Purchase of the Heartsaver CPR provider manual prior to class is required.*

Offered: May not be offered this year, check class schedule.

**EMT 122 Burn Emergencies**

.25 cr. hrs. .25 periods (.25 lec.)

Overview, techniques and skills for burn emergencies. Includes the following topics: general system pathophysiology, assessment, and management. Also includes current burn emergency trends.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

Offered: May not be offered this year, check class schedule.

**EMT 123 Neurological Emergencies**

.25 cr. hrs. .25 periods (.25 lec.)

Concepts, techniques and skills for neurological emergencies. Includes the following neurological topics: general system pathophysiology, assessment, and management. Also includes integration and current trends in neurological emergencies.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

Offered: May not be offered this year, check class schedule.

**EMT 124 Toxicology Emergencies**

.25 cr. hrs. .25 periods (.25 lec.)

Overview, techniques, and skills for toxicology emergencies. Includes the following topics: general and specific toxicology, assessment, management and current trends in toxicology emergencies.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

Offered: May not be offered this year, check class schedule.

**EMT 125 Abdominal Trauma**

.25 cr. hrs. .25 periods (.25 lec.)

Overview, techniques, and skills for abdominal trauma emergencies. Includes the following topics: general system pathophysiology, organ injury assessment and management, organ injuries, pelvic fractures, and current trends in abdominal trauma.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

*Offered: May not be offered this year, check class schedule.*

**EMT 126 Environmental Emergencies**

.25 cr. hrs. .25 periods (.25 lec.)

Overview, techniques, and skills for environmental emergencies. Includes the following environmental emergency topics: environmental illnesses, risk factors, general and specific system pathophysiology, assessment, heat and cold, near-drowning, diving, and current environmental emergency trends.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

*Offered: May not be offered this year, check class schedule.*

**EMT 127 Obstetric Emergencies**

.25 cr. hrs. .25 periods (.25 lec.)

Concepts, techniques and skills for obstetric (OB) emergencies. Includes the following topics: anatomy and physiology of the reproductive system, general and specific assessment, complication of pregnancy, normal childbirth, routine care of the neonate, abnormal deliveries, and current obstetric emergency trends.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

*Offered: May not be offered this year, check class schedule.*

**EMT 128 Allergic Reaction**

.25 cr. hrs. .25 periods (.25 lec.)

Overview, techniques, and skills for allergic reaction emergencies. Includes the following topics: anaphylaxis, pathophysiology, management of anaphylaxis and allergic reaction, and current trends in allergic emergencies.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

*Offered: May not be offered this year, check class schedule.*

**EMT 129 Neonatal Resuscitation**

.25 cr. hrs. .25 periods (.25 lec.)

Overview, techniques, and skills for neonatal resuscitation emergencies. Includes the follow topics: risk factors, physiological adaptations at birth, neonate assessment and management, distressed newborn resuscitation, postresuscitation care, neonatal transport, and neonatal specific situations. Also includes common birth injuries and trends in neonatal emergencies.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

*Offered: May not be offered this year, check class schedule.*

**EMT 130 Rescue Operations**

.25 cr. hrs. .25 periods (.25 lec.)

Overview, techniques, and skills for rescue operations. Includes the following topics: surface water rescue, hazardous atmospheres, highway operations, hazardous terrain, vehicle rescue, assessment procedures, and current trends in rescue operations.

*Information: Designed for Medical Service personnel interested in continuing education for Emergency state certification.*

*Offered: May not be offered this year, check class schedule.*

**EMT 140 Pre-Hospital Trauma Life Support**

1.5 cr. hrs. 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, Summer.*

**EMT 141 Pre-Hospital Trauma Life Support Refresher**

1.5 cr. hrs. 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, and various types of trauma patients.

*Information: Includes teaching and evaluation stations as a review and update for those students who have taken EMT 140.*

*Offered: May not be offered this year, check class schedule.*

**EMT 142 Advanced Medical Life Support Instructor**

1 cr. hrs. 1 periods (1 lec.)

A review of the Advanced Medical Life Support (AMLS) Provider and Refresher course. Concepts, techniques, and support materials to provide AMLS instructor-candidates with skills necessary to conduct and participate as faculty in an approved AMLS course. Includes the styles of adult learners, suggestions on maximizing the learning experience of participants, and the administration components of the AMLS courses.

*Information: The AMLS instructor course is designed for students who have achieved instructor-candidate potential when successfully completing an AMLS provider or refresher course. The student must hold an advanced healthcare provider status and have experience teaching at the advanced practitioner level.*

*Offered: May not be offered this year, check class schedule.*

**EMT 143 Prehospital Trauma Life Support Instructor (PHTLS)**

1 cr. hrs. 1 periods (1 lec.)

A review of the Prehospital Life Support (PHTLS) Provider and PHTLS Refresher course. Includes concepts, techniques and support materials to provide PHTLS instructor-candidates with the knowledge, skills, and support materials necessary to conduct and participate as faculty in an approved PHTLS course. Also includes styles of adult learners, suggestions to maximize the learning experience of participants, and the administration components of the PHTLS courses.

*Information: This course is designed for those who have achieved instructor-candidate potential upon successful completion of the EMT 140 PHTLS Provider and EMT 141 PHTLS Refresher courses. Advanced healthcare provider status and experience teaching at the advanced practitioner level is required prior to enrolling in this course.*

*Offered: May not be offered this year, check class schedule.*

**EMT 155 Advanced Medical Life Support (AMLS) Provider**

1.5 cr. hrs. 1.5 periods (1.5 lec.)

Overview, concepts and techniques to study medical emergencies related to adult patients. Includes a pragmatic approach and systematic format regarding patient assessment and management. Includes interactive scenario-based lectures with hands-on physical assessment of patients. Includes a global and initial assessment taking into account the patient's environmental and scene issues that allows the participant to formulate a general impression, determine the patient's stability, and explore the possibilities of differential diagnoses. Also includes using a systematic approach to obtain an initial assessment, vital signs, present illness, past medical, focused physical exam; the participant will be driven by the differential diagnoses.

*Information: AMLS is an advanced course that assumes a previous working knowledge of medical emergencies, there are necessary prerequisites: EMT-B, EMT-I, EMT-P, RN, MD, DO, and other advanced level healthcare providers with at least one year of clinical experience. Participant must read the AMLS textbook before class and come to class prepared and complete the pre-test. EMT-B will have a separate pre-test and post-test written evaluation for EMT-Basic providers.*

*Offered: Fall, Spring, Summer.*

**EMT 156 Advanced Cardiac Life Support Challenge**

.25 cr. hrs. .25 periods (.25 lec.)

The Advanced Cardiac Life Support (ACLS) Challenge verifies the knowledge and skills needed to evaluate and manage patients of all ages in cardiac arrest (as required by the American Heart Association Guidelines). Includes 10 core ACLS cases: respiratory emergencies, four types of cardiac arrest: simple VF/VT, complex VF/VT, PEA, and asystole). Also includes four types of prearrest emergencies: bradycardia, stable tachycardia, unstable tachycardia, and acute coronary syndromes and stroke.

*Information: Provides the challenge portion of the American Heart Association (AHA) online course in Advanced Cardiac Life Support (ACLS). AHA certificate is required at the beginning of class.*

*Offered: May not be offered this year, check class schedule.*

**EMT 158 Transition Training for EMT**

1.5 cr. hrs. 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.*

*Information: May be taken six times for a maximum of nine credit hours.*

Offered: Fall, Spring, Summer.

**EMT 159 Cardiopulmonary Resuscitation: Healthcare Provider**

.5 cr. hrs. .75 periods (.25 lec., .5 lab)

Introduction to the techniques required to provide Cardiopulmonary Resuscitation (CPR) 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.*

*Information: May be taken six times for a maximum of three credit hours.*

Offered: May not be offered this year, check class schedule.

**EMT 160 Heartsaver CPR and AED Provider**

.5 cr. hrs. .5 periods (.5 lec.)

Concepts and techniques to assess and treat patients with airway obstruction, respiratory, and/or cardiac arrest for the lay person. Includes the integration of principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with foreign body airway obstruction, respiratory and/or cardiac arrest. Also includes the choice of five topics: Adult Cardiopulmonary Resuscitation (CPR), Pediatric CPR, Adult Automatic External Defibrillator (AED), Pediatric AED, and Infant CPR.

*Information: Purchase of the Heartsaver CPR with AED Provider Manual prior to class is required.*

Offered: May not be offered this year, check class schedule.

**EMT 170 Advanced Life Support Operations**

1 cr. hrs. 1 periods (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 Paramedic program is required before enrolling in this course.*

Offered: Contact department at 206-6350.

**EMT 180 EMT Review - Theory and Practice**

6 cr. hrs. 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 cr. hrs. 4 periods (2 lec., 2 lab)

Comprehensive review of the knowledge and skills required by 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: May not be offered this year, check class schedule.

**EMT 180B EMT Review - Theory and Practice Module B**

3 cr. hrs. 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: May not be offered this year, check class schedule.



**EMT 205 ALS Pharmacology and Medication Administration**

3 cr. hrs. 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 the Paramedic program is required before enrolling in this course.*

*Offered: Contact department at 206-6350.*

**EMT 214 ALS Advanced Special Considerations**

2.5 cr. hrs. 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 the Paramedic program is required before enrolling in this course.*

*Offered: Contact department at 206-6350.*

**EMT 218 Paramedic National Registry Preparation**

3.5 cr. hrs. 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 this course.*

*Offered: Contact department at 206-6350.*

**EMT 219 ALS Foundations**

1.5 cr. hrs. 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 the Paramedic program is required before enrolling in this course.*

*Offered: Contact department at 206-6350.*

**EMT 221 ALS Airway and Ventilation**

1.5 cr. hrs. 2 periods (1 lec., 1 lab)

Techniques for establishing and/or maintaining a patient's airway. Also includes anatomy and physiology, age specific techniques and procedures, introduction to respiratory pharmacology and respiratory drug profiling.

*Information: Acceptance into the Paramedic program is required before enrolling in this course.*

*Offered: Contact department at 206-6350.*

**EMT 222 ALS Patient Assessment and Assessment Based Management**

1.5 cr. hrs. 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. Also 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 the Paramedic program is required before enrolling in this course.*

*Offered: Contact department at 206-6350.*

**EMT 223 ALS Trauma Emergencies and Systems**

2 cr. hrs. 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 the Paramedic program is required before enrolling in this course.*

*Offered: Contact department at 206-6350.*

**EMT 224 ALS Medical Emergencies**

4 cr. hrs. 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 the Paramedic program is required before enrolling in this course.*

*Offered: Contact department at 206-6350.*

**EMT 225 ALS Special Medical Considerations**

2 cr. hrs. 2.25 periods (1.75 lec., .5 lab)

Introduction to special medical consideration concepts. Includes utilizing assessment findings to formulate a field impression and implement the treatment plan for obstetric, neonatal, pediatric, geriatric, and chronic-care patients.

*Information: Acceptance into the Paramedic program is required before enrolling in this course.*

Offered: Contact department at 206-6350.

**EMT 227LC ALS Practicum: Clinical Lab**

3 cr. hrs. 9 periods (9 lab)

Techniques for performing skills and completing documentation in accordance with established guidelines, orders, and protocols, and act within the scope of practice of the Advanced Life Support (ALS) Professional and under medical supervision. Includes critical care, emergency department, labor and delivery, pediatrics, and specialty units.

*Information: Acceptance into the Paramedic program is required before enrolling in this course.*

Offered: Contact department at 206-6350.

**EMT 228LC ALS Practicum: Vehicular Lab**

3 cr. hrs. 9 periods (9 lab)

ALS vehicular lab concepts. Includes techniques for performing and documenting in accordance with established guidelines, orders, and protocols for entral care, emergency department, labor and delivery, pediatrics and other specialty units. Includes applying skills associated to the scope of practice for the Advanced Life Support (ALS) Professional.

*Information: Acceptance into the Paramedic program is required before enrolling in this course.*

Offered: Contact department at 206-6350.

**EMT 230 Basic ECG Interpretation**

1.5 cr. hrs. 1.75 periods (1.25 lec., .5 lab)

Introduction to all levels of emergency care providers with basic electrocardiographic (ECG) rhythm analysis. Includes interpretation and related care in a clinical and pre-hospital setting.

*Information: Required content for the identification and treatment of cardiac emergencies.*

*Information: This course is designed for paramedics and paramedic students.*

Offered: Contact department at 206-6350.

**EMT 233 Basic Cardiac Life Support Instructor**

.75 cr. hrs. .75 periods (.75 lec.)

Concepts, techniques, and skills in how to teach the Basic Cardiac Life Support of the Heartsaver First Aid Provider course. Includes basic principles, course management, personnel issues, time and resource management, and remediation.

*Information: Provides the challenge portion of the American Heart Association (AHA) online course in Advanced Cardiac Life Support (ACLS). AHA certificate is required at the beginning of class.*

Offered: May not be offered this year, check class schedule.

**EMT 234 Heartsaver First Aid Instructor**

.75 cr. hrs. .75 periods (.75 lec.)

Concepts, techniques, and skills in how to teach Heartsaver First Aid (HSAFA) for instructors. Includes basic HeartSaver First Aid instructor principles, course management, personnel issues, time and resource management, and remediation.

*Information: To become a HSFAl, the candidate must already be an Instructor in Basic Life Support (BLS) or Heartsaver - HS CPR; therefore there are no proficiency requirements other than current card in respective discipline and good standing with AHA.*

Offered: May not be offered this year, check class schedule.

**EMT 235 Phlebotomy**

2 cr. hrs. 2.5 periods (1.5 lec., 1 lab)

Overview and practical application of phlebotomy procedures and techniques. Includes the healthcare setting, overview of the human body, blood collection procedures, and special procedures.

*Information: AZ Post Certified Law Enforcement Officer or other Criminal Justice employee must have written recommendation from agency. Must also have approval from agency Phlebotomy coordinator.*

Offered: May not be offered this year, check class schedule.

**EMT 236 Phlebotomy Refresher**

.5 cr. hrs. .5 periods (.5 lec.)

Review of techniques and theory including up-to-date information regarding phlebotomy procedures, equipment, and legal issues. Designed to offer Law Enforcement Officers and employees of a Criminal Justice Agency, who have previously completed the 40-hour Phlebotomy for Law Enforcement Program. Also includes content suggested for maintaining continued competency while practicing phlebotomy procedures for Criminal Justice purposes.

*Information: AZ Post Certified Law Enforcement Officer or other Criminal Justice employee must have written recommendation from agency. Must also have approval from agency Phlebotomy coordinator.*

Offered: May not be offered this year, check class schedule.

**EMT 238 Advanced Cardiac Life Support Instructor**

1 cr. hrs. 1 periods (1 lec.)

Overview, concepts, and techniques in how to teach the Advanced Cardiac Life Support in the Provider course. Includes basic principles, course management, personnel issues, time and resource management, and remediation.

Offered: May not be offered this year, check class schedule.

**EMT 239 Pediatric Advanced Cardiac Life Support Instructor**

1 cr. hrs. 1 periods (1 lec.)

Overview, concepts, and techniques in how to teach Pediatric Advanced Cardiac Life Support (PALS) course to the provider. Includes pediatric basic principles, course management, personnel issues, time and resource management, and remediation.

Offered: May not be offered this year, check class schedule.

**EMT 241 Emergency Pediatric Care (EPC) Instructor**

1 cr. hrs. 1 periods (1 lec.)

Overview of concepts and techniques used by the Emergency Pediatric Care (EPC) instructor. Includes a review of basic principles of emergency pediatric care, methods of patient assessment, medical emergencies, pediatric trauma, and special populations. Also includes introduction to needs of the adult learner, suggestions on maximizing the learning experience, and administrative components of the EPC course.

*Information: This is an advanced course requiring previous working knowledge of pediatric trauma and medical emergencies. Course is restricted to: EMT-P, RN, MD, DO, and other advanced level healthcare providers who must have at least one year of clinical experience and complete the pre-test before beginning course.*

Offered: May not be offered this year, check class schedule.

**EMT 242 ALS Advanced Foundations**

2 cr. hrs. 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 219.

*Information: Acceptance into the Paramedic program is required before enrolling in this course.*

Offered: Contact department at 206-6350.

**EMT 243 Emergency Pediatric Care (EPC) Initial**

1.5 cr. hrs. 1.5 periods (1.5 lec.)

Concepts, techniques, and skills associated with medical and trauma emergencies for the newborn and pediatric patient. Includes in-depth study of emergency pediatric care, methods of patient assessment, medical emergencies, pediatric trauma, and management of Children with Special Health Care Needs (CSHCN).

*Information: This is an advanced course requiring previous working knowledge of pediatric trauma and medical emergencies. Course is restricted to EMT-P, RN, MD, DO, and other advanced level-healthcare providers who must have at least one year of clinical experience and complete the pre-test before beginning course.*

Offered: Fall, Spring, Summer.

**EMT 244 ALS Advanced Medical Emergencies**

2.5 cr. hrs. 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 the Paramedic program is required before enrolling in this course.*

Offered: Contact department at 206-6350.

**EMT 247LC ALS Advanced Practicum: Clinical Lab**

3 cr. hrs. 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 the Paramedic program is required before enrolling in this course.

Offered: Contact department at 206-6350.

**EMT 248LC ALS Advanced Practicum: Vehicular Lab**

3 cr. hrs. 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 the Paramedic program is required before enrolling in this course.

Offered: Contact department at 206-6350.

**EMT 250 Advanced Cardiac Care**

1.5 cr. hrs. 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. Also includes information on cardiovascular anatomy and physiology, cardiovascular pathologies and management, and adjunctive diagnostics.

Offered: Contact department at 206-6350.

**EMT 251 Advanced Cardiac Care Refresher**

.75 cr. hrs. 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: May not be offered this year, check class schedule.

**EMT 252 Pediatric Advanced Life Support**

1.5 cr. hrs. 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: Contact department at 206-6350.

**EMT 253 Pediatric Advanced Life Support Refresher**

.75 cr. hrs. 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: May not be offered this year, check class schedule.

**EMT 254 Advanced ECG Interpretation**

3 cr. hrs. 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: Contact department at 206-6350.

**EMT 255 Instructional Strategies**

2 cr. hrs. 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: May not be offered this year, check class schedule.

**EMT 256 International Trauma Life Support**

1.5 cr. hrs. 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: May not be offered this year, check class schedule.

**EMT 258 Pediatric Education for Pre-Hospital Professionals**

1.5 cr. hrs. 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: Contact department at 206-6350.

**EMT 259 Pediatric Education for Pre-Hospital Professionals Refresher**

.75 cr. hrs. 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: May not be offered this year, check class schedule.

**EMT 260 Advanced Life Support Refresher**

3 cr. hrs. 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. Includes airway, ventilation, and oxygen therapy; trauma and shock management; medical emergencies; special patient care; and special scene operations.

Offered: May not be offered this year, check class schedule.

**EMT 261 National Registry of Emergency Medical Technician Evaluator**

1.5 cr. hrs. 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: May not be offered this year, check class schedule.

**EMT 263 Tox-Medic**

1.5 cr. hrs. 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: Contact department at 206-6350.

**EMT 264 Tox-Medic Refresher**

.5 cr. hrs. .5 periods (.5 lec.)

Continuation of EMT 263. Provides paramedics with continuing training in identification, assessment, and treatment of victims exposed to hazardous materials.

**Prerequisite(s):** EMT 263.

Offered: May not be offered this year, check class schedule.

**EMT 295 ALS Independent Research**

3 cr. hrs. 3 periods (3 lec.)

Independent research in advanced pre-hospital care.

*Information: To be arranged by instructor.*

Offered: Contact department at 206-6350.

## Engineering

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### ENG 102IN Problem-Solving and Engineering Designs SUN# EGR 1102

3 cr. hrs. 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 MAT 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 cr. hrs. 6 periods (3 lec., 3 lab)

Fundamental principles of the chemistry of condensed states of matter including metals, polymers, molecular solids, and ceramics. Includes quantization, atomic structure, bonding, band and crystalline structure, conductivity, thermodynamics, and phase diagrams. Also includes electrochemistry and electrochemical devices, glass, optical properties and devices, and semiconductor devices.

**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 Civil Engineering Graphics and Design

3 cr. hrs. 7 periods (1 lec., 6 lab)

Introduction to civil engineering graphics and design using sketching and computer-aided design (CAD) Civil 3D software. Includes engineering basic applications, basic math and geometry, basic math and algorithms, corridor development, site grading and earthwork concepts, piping and draining concepts, surveying concepts and procedures, and visualization and construction documents.

**Prerequisite(s):** MAT 108.

*Information: Prerequisite(s) may be waived with high school geometry.*

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall.

### ENG 122IN Engineering Graphics and Design with Solid Modeling

3 cr. hrs. 7 periods (1 lec., 6 lab)

Introduction to engineering graphics and the concepts of engineering design. Includes sketching, dimensioning practices and tolerances, computer-aided design (CAD), basic part modeling, and three-dimensional (3D) assembly modeling.

**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.

### ENG 130IN Elementary Surveying

3 cr. hrs. 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 MAT 187.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall.

### ENG 170IN Problem-Solving Using Computers

3 cr. hrs. 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 MAT 187.

*Information: IN is the integrated version of the course with lecture and lab taught simultaneously.*

Offered: Fall.

**ENG 175IN Computer Programming for Engineering Applications**

3 cr. hrs. 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 MAT 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 cr. hrs. 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):** MAT 231 and PHY 210/210LB or 210IN .

Offered: Fall, Spring.

**ENG 218 Fluid Mechanics**

3 cr. hrs. 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**

4 cr. hrs. 4 periods (4 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, MAT 241.

Offered: Fall, Spring.

**ENG 230 Mechanics of Materials**

4 cr. hrs. 4 periods (4 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**

4 cr. hrs. 4 periods (4 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.

**Prerequisite(s):** MAT 241 and PHY 216.

Offered: Fall, Spring.

**ENG 250 Numerical Analysis for Engineers**

3 cr. hrs. 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 170IN or 175IN, and MAT 231.

Offered: May not be offered this year, check class schedule.

**ENG 260 Electrical Engineering**

3 cr. hrs. 3 periods (3 lec.)

Introductory survey of the electrical engineering discipline with emphasis on electrical power applications. Includes resistive circuits, inductance and capacitance, transients, steady-state sinusoidal analysis, and logic circuits. Also includes operational amplifiers, microcomputers, and diode electronics.

**Prerequisite(s):** MAT 231 and PHY 216/216LB or 216IN.

Offered: Fall, Spring.

**ENG 274IN Digital Logic**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the theory and design of digital logic circuits. Includes combinational logic design, sequential logic design, combinational and sequential component design, register-transfer level design, optimizations and tradeoffs, and physical implementation.

**Prerequisite(s):** MAT 231 and PHY 216IN.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

**ENG 282IN Basic Electric Circuits**

5 cr. hrs. 7 periods (4 lec., 3 lab)

Introduction to the fundamentals of alternating current (AC) and direct current (DC) circuits. Includes circuit variables, circuit elements, simple resistive circuits, techniques of circuit analysis, the operational amplifier; inductance, capacitance, and mutual inductance; response of first-order resistor-inductor (RL) and resistor-capacitor (RC) circuits, natural and step responses of RLC circuits, and sinusoidal steady-state analysis.

**Prerequisite(s):** MAT 262, PHY 216/216LB/216IN.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall, Spring.

## English as a Second Language

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**ESL 050 English for Beginners**

6 cr. hrs. 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.

**ESL 050GR Grammar for Beginners**

3 cr. hrs. 3 periods (3 lec.)

Fundamentals of grammar with a focus on English in everyday life. Includes verb tense and mood, sentence structure, and parts of speech.

**Prerequisite(s):** Required score on ESL assessment test.

**Recommendation:** Concurrent enrollment in ESL 050 is highly recommended.

Offered: Summer.

**ESL 060 English for Speakers of Other Languages I**

6 cr. hrs. 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 and exposure to American culture through meaningful communication.

**Prerequisite(s):** ESL 050 with a C or better or required score on ESL assessment test.

*Information:* Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall, Spring, Summer.

**ESL 060CN Conversation I**

3 cr. hrs. 3 periods (3 lec.)

Beginning-level conversational skills for situations and tasks relevant to daily life, social interactions, and personal interests. Includes conversing about a range of topics with communicative appropriateness, basic vocabulary and language functions, and exploration of college resources.

**Prerequisite(s):** ESL 050 with a C or better, or required score on ESL assessment test.

*Information:* Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.

Offered: Fall.



**ESL 060CU Introduction to American Culture**

3 cr. hrs. 3 periods (3 lec.)

Basic-level integrated skills course on American culture for ESL students. Includes cultural adjustment, various topics on American culture, and basic English language skills development.

**Prerequisite(s):** *ESL 050 with a C or better, or required score on ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: May not be offered this year, check class schedule.*

**ESL 060GR English Grammar I**

3 cr. hrs. 3 periods (3 lec.)

Fundamentals of grammar with a focus on English in everyday life. Includes verb tense and mood, sentence structure, and parts of speech.

**Prerequisite(s):** *ESL 050 with a C or better, or required score on ESL assessment test.*

**Recommendation:** *Concurrent enrollment in ESL 060 is highly recommended.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring.*

**ESL 060JB English on the Job I**

3 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: May not be offered this year, check class schedule.*

**ESL 060PR Pronunciation I**

3 cr. hrs. 3 periods (3 lec.)

Pronunciation and spelling for non-native English at the introductory and basic levels. Includes an introduction to pronunciation improvement, basic sound-symbol patterns and production of corresponding sounds, stress, rhythm, and intonation, and fluency within communicative contexts.

**Prerequisite(s):** *ESL 050 with a C or better, or required score on ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Spring.*

**ESL 070 English for Speakers of Other Languages II**

6 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring, Summer.*

**ESL 070CN Conversation II**

3 cr. hrs. 3 periods (3 lec.)

Intermediate-level conversational skills for increased fluency and comprehension. Includes conversing about a variety of topics with increased proficiency and communicative appropriateness, vocabulary building skills, range of language functions, and increased awareness of college resources.

**Prerequisite(s):** *ESL 060 or higher with a C or better, or required score on ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring.*

**ESL 070CT Computer Technology to Develop English Skills**

3 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: May not be offered this year, check class schedule.*

**ESL 070CU Survey of American Culture**

3 cr. hrs. 3 periods (3 lec.)

Intermediate-level course on American culture for ESL students. Includes an introduction to a variety of topics in American culture through readings, video and audio clips, and English language skills development.

**Prerequisite(s):** *Completion of ESL 060 or higher with a grade of C or better or required score on ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Spring.*

**ESL 070GR English Grammar II**

3 cr. hrs. 3 periods (3 lec.)

Intermediate level grammar with focus on English in everyday life. Includes verb tense and mood, sentence structure, and parts of speech.

**Prerequisite(s):** *ESL 060 with a C or better, or required score on ESL assessment test.*

**Recommendation:** *Concurrent enrollment in ESL 070 is highly recommended.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring.*

**ESL 070JB English on the Job II**

3 cr. hrs. 3 periods (3 lec.)

General workplace communication skills for intermediate ESL students. Includes job search skills, communication with supervisors and co-workers, expectations and culture in the American workplace, employee rights and responsibilities, and problem-solving strategies.

**Prerequisite(s):** *ESL 060 with a C or better, or required score on ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: May not be offered this year, check class schedule.*

**ESL 070PR Pronunciation II**

3 cr. hrs. 3 periods (3 lec.)

Pronunciation for non-native English speakers at the intermediate level. Includes introduction to pronunciation improvement, use of pronunciation keys and symbols, suprasegmentals, and increasing fluency within communicative contexts.

**Prerequisite(s):** *ESL 060 or higher with a C or better, or required score on ESL assessment test.*

*Information: Prerequisite(s) 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 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring, Summer.*

**ESL 080CN Conversation III**

3 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring.*

**ESL 080CU American English and Culture through Film**

3 cr. hrs. 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: May not be offered this year, check class schedule.*

**ESL 080GR English Grammar III**

3 cr. hrs. 3 periods (3 lec.)

Intermediate level grammar with a focus on English in everyday life. Includes verb tense and mood, sentence structure and parts of speech.

**Prerequisite(s):** *ESL 070 with a C or better, or required score on ESL assessment test.*

**Recommendation:** *Concurrent enrollment in ESL 080 is highly recommended.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring.*

**ESL 080PR Pronunciation III**

3 cr. hrs. 3 periods (3 lec.)

Pronunciation for non-native English speakers at the advanced level. Includes strategies for continued pronunciation improvement, use of pronunciation keys and symbols, suprasegmentals, and increased fluency within communicative contexts.

**Prerequisite(s):** *ESL 070 or higher with a C or better, or required score on ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Spring.*

**ESL 085 Academic English I**

6 cr. hrs. 6 periods (6 lec.)

High-intermediate-level, integrated academic skills for non-native speakers of English. Includes four content-based units including 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring, Summer.*

**ESL 085CU Exploring American Film**

3 cr. hrs. 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 an 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: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring.*

**ESL 085GR Academic Grammar I**

3 cr. hrs. 3 periods (3 lec.)

Advanced level grammar with a focus on written English in academic contexts. Includes verb tense and mood, sentence structure, parts of speech and other structures.

**Prerequisite(s):** *ESL 080 with a C or better, or required score on ESL assessment test.*

**Recommendation:** *Concurrent enrollment in ESL 085 is highly recommended.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

*Offered: Fall, Spring.*

**ESL 088 Academic English II**

6 cr. hrs. 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, and goal setting.

**Prerequisite(s):** *ESL 085 with a C or better or required score on the ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

Offered: Fall, Spring.

**ESL 088GR Academic Grammar II**

3 cr. hrs. 3 periods (3 lec.)

Advanced level grammar with a focus on written English in academic contexts. Includes verb tense and mood, sentence structure, structural analysis and other structures.

**Prerequisite(s):** *ESL 085 with a C or better, or required score on ESL assessment test.*

**Recommendation:** *Concurrent enrollment in ESL 088 is highly recommended.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

Offered: Fall, Spring.

**ESL 088TO Comprehensive TOEFL Preparation**

3 cr. hrs. 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 the ESL assessment test.*

*Information: Prerequisite(s) may be waived with consent of instructor. See an ESL instructor for details.*

Offered: Fall, Spring.

## Environmental Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**ENV 105 Humanity and the Environment**

3 cr. hrs. 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 cr. hrs. 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.*

*Information: Same as ANT 105LB.*

Offered: Fall, Spring.

## Experiential Education

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### EED 110 Prior Learning Assessment

1-6 cr. hrs. 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.*

*Information: A maximum of 36 credits may be earned for the Fire Science, Corrections, Juvenile Corrections, and Intermediate EMT programs; students must register for three credits.*

*Information: A maximum of 50 credits may be earned for the EMT Paramedic and Law Enforcement programs; students must register for six credits.*

*Information: A maximum of 9 credits may be earned by students who have earned credits previously in this course; students must register for one credit.*

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 277

### FDC 110 Clothing Construction I

3 cr. hrs. 5 periods (2 lec., 3 lab)

An introduction to basic clothing construction techniques designed for inexperienced sewers. Includes terminology, tools and equipment, garment pattern components, fabric components, interfacing, and construction sample and pressing techniques.

Offered: Fall, Spring, Summer.

### FDC 111 Clothing Construction II

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of FDC 110. Intermediate principles of clothing construction. Includes planning the garment, preparation of garment pieces, assembly, unit production, and evaluation.

**Prerequisite(s):** FDC 110 with a B or better.

*Information: Prerequisite may be waived with consent of instructor.*

Offered: Fall, Spring.

### FDC 112 Alteration and Pattern Fitting

3 cr. hrs. 5 periods (2 lec., 3 lab)

Methods of altering commercial patterns and principles of fitting garments. Includes fitting a commercial pattern, making a muslin, construct a design using fit techniques, and evaluation of standards of fitting and relationship to styles.

Offered: Spring.

### FDC 121 Flat Pattern Making

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the flat pattern method of pattern making for apparel production. Includes principles of pattern manipulation, practical applications, and evaluating the applications to a selected design project.

**Prerequisite(s):** FDC 111.

Offered: Fall, Spring.

### FDC 122 History of Clothing

3 cr. hrs. 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 through research and projects.

Offered: Spring.

**FDC 123 Computer Patternmaking I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to patternmaking for apparel production using computer software. Includes measurements, creating a basic set of slopers, checking sloper fit, and basic pattern concepts.

**Prerequisite(s):** FDC 111, 121.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Spring.

**FDC 126 Textiles**

3 cr. hrs. 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: Spring.

**FDC 131 Wardrobe and Styling**

3 cr. hrs. 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, wardrobe issues, and ritual of dress.

Offered: Fall.

**FDC 132 Global Fashion and Culture**

3 cr. hrs. 3 periods (3 lec.)

Human behavior in relationship to clothing, body image, and self-concept. Includes global behavior and dress, clothing as messenger, the ritual of dress, global fashion for the masses, and life stages and clothing and image needs.

Offered: Spring.

**FDC 135 Fashion Show/Event Planning**

3 cr. hrs. 3 periods (3 lec.)

A survey of fashion direction, publicity and fashion event coordination. Includes development of an event, student fashion show production, and wrap up.

**Recommendation:** Completion of FDC 141 before enrolling in this course.

Offered: Spring.

**FDC 141 Introduction to Fashion Design**

3 cr. hrs. 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: Spring.

**FDC 142 Restyling and Alterations**

3 cr. hrs. 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.

**Prerequisite(s):** FDC 111.

Offered: Fall.

**FDC 144 Fashion Drawing**

3 cr. hrs. 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.

**FDC 148 Costume Design**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to basic design techniques for theater costumes. Includes identifying and applying elements, sketching and coloring, paper fabrication of costume design, script and character analysis, application of historical research, and production scheduling and budget.

*Information: Same as THE 148. May be taken two times for a maximum of six credit hours.*

Offered: Fall.

**FDC 152 Costume Construction**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to basic costume construction techniques for theater costumes. Includes period patterning, period silhouettes, review of basic sewing and construction, measuring and fitting, commercial patterns, recycled garments, and construction of a period costume.

**Prerequisite(s):** FDC 110 and 111 and FDC/THE 148.

*Information:* Same as THE 152. May be taken two times for a maximum of six credit hours.

Offered: Spring.

**FDC 196 Independent Studies in Fashion Design and Clothing**

3 cr. hrs. 5- periods (2 lec., 3 lab)

Independent projects for continuing individual development in fashion design and clothing under the guidance of a faculty member.

*Information:* May be taken three times for a maximum of 9 credit hours. Students must have taken at least twelve (12) credit hours in FDC courses before enrolling in this course.

Offered: Fall, Spring.

**FDC 199 Co-op: Fashion Design and Clothing**

1 cr. hrs. 1 periods (1 lec.)

Introduction to the work environment in the Fashion Apparel field. Includes the internship process, applying course work, oral and written communication skills, and self management on the job.

**Corequisite(s):** FDC 199WK

*Information:* Consent of instructor of department chair and successful completion of twelve (12) credit hours of FDC course work are required 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.

**FDC 199WK Co-op Work: Fashion Design and Clothing**

1-5 cr. hrs. 5-25 periods (5-25 lab)

A supervised work environment in the Fashion Apparel field. Includes completion of hours, knowledge of fashion industry job site, demonstration of aptitudes and abilities, journal/record of daily experiences and observations, and maintaining a written and digital contact list.

**Corequisite(s):** FDC 199

*Information:* Consent of instructor or department chair and successful completion of twelve (12) credit hours of FDC course work are required before enrolling in this course.

*Information:* May be taken four times for a maximum of twenty credit hours.

Offered: May not be offered this year, check class schedule.

**FDC 211 Clothing Construction III**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of FDC 111. Advanced techniques in construction of clothing. Includes pattern layout options, construction techniques and principles applied to special fabrics, fabric selection for specialty garments, and evaluation.

**Prerequisite(s):** FDC 111 with a B or better.

*Information:* Prerequisite may be waived with consent of instructor.

Offered: Fall, Spring.

**FDC 212 Tailoring: Jackets**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Traditional and speed-tailoring methods for jackets utilizing advanced techniques and materials. Includes pattern alterations for jackets, buttonholes, welt pockets, shaping the interfacing, inner structure of jackets, and complete garment evaluation.

**Prerequisite(s):** FDC 112, 211 with a grade of B or better.

*Information:* Prerequisite(s) may be waived with consent of instructor.

Offered: Spring.

**FDC 213 Tailoring: Pants and Shirts**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Traditional and speed-tailoring methods for pants and shirts utilizing advanced techniques and materials. Includes pant construction, shirt construction, and completed garment evaluation.

**Prerequisite(s):** FDC 112, 211 with a grade of B or better.

*Information:* Prerequisites may be waived with consent of instructor.

Offered: Spring.

**FDC 214 Bridal and Formal Wear**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Advanced construction techniques applied to specialty fabrics for formal wear. Includes client vs. customer, fitting the client, creating the muslin, constructing the formal wear garment, and closing contracts with the client

**Prerequisite(s):** FDC 111 and 211 with a grade of B or better.

**Recommendation:** Successful completion of FDC 212 before enrolling in this course.

Offered: Spring.

**FDC 218 Introduction to Accessory Design**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to accessory design as it relates to historical and current trends. Includes construction of a simple handbag, construction techniques for hats, belts, hair accessories, and pet fashions. Also includes marketing and merchandising accessories.

**Prerequisite(s):** FDC 111.

*Information:* Proficiency test may be required for placement level.

Offered: Spring.

**FDC 221 Flat Pattern Making II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of FDC 121. Includes measurement, marking and fitting, review of sloper slash and spread methods of design, pattern preparation, determining garment patterns, garment construction, and evaluation of individual garment design and construction.

**Prerequisite(s):** FDC 121.

**Recommendation:** Students should have a grade of C or higher in the prerequisite course before enrolling in this course.

Offered: Spring.

**FDC 223 Computer Patternmaking II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of FDC 123. Includes introduction to software pattern libraries, advanced computer flat patternmaking, and using computer-aided pattern design.

**Prerequisite(s):** FDC 123.

Offered: Spring.

**FDC 224 Computer Patternmaking III**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of FDC 223. Includes computer marker making, creation of technical sketches for use in production, and computer measurement grading.

**Prerequisite(s):** FDC 223.

Offered: May not be offered this year, check class schedule.

**FDC 241 Draping I**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Application of design principles using the draping method of fashion design to create an original garment on a dress form. Includes review of essential design principles, muslin preparation, determining garment patterns, applying fabrics to the dress form, garment construction, and evaluation of individual garment design and construction.

**Prerequisite(s):** FDC 111 and 211 with a grade of B or better.

**Recommendation:** Completion of FDC 211 with a grade of B or better before enrolling in this course.

Offered: Fall.



**FDC 242 Draping II**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Continuation of FDC 241. Advanced draping techniques for fashion design to include the design and construction of a formal apparel item. Includes muslin for advanced apparel designs, yardage calculation, specialty fashion fabrics, constructing the formal wear or bridal design, and formal apparel evaluation.

**Prerequisite(s):** FDC 211 and 241 with a grade of B or better.

Offered: May not be offered this year, check class schedule.

**FDC 245 Digital Fashion Design**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the use of computer software to design fashion and technical drawings. Includes the fashion work arena, features and applications used to create digital fashion drawings, vocabulary, terms and technical criteria, fashion software, and developing multiple color patterns and textures.

**Prerequisite(s):** FDC 111, 144 with a B or better.

**Recommendation:** Completion of ART 100 before enrolling in this course.

Offered: Spring.

**FDC 288 Portfolio Preparation**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Overview of the development and marketing of a professional portfolio. Includes definition and evaluation of coherent bodies of work, documentation of work, preparation of portfolio production, production of a portfolio, parts of a portfolio, and marketing.

**Recommendation:** For advanced students who have completed coursework in their specific areas.

*Information: Portfolio concentrations will be determined in a conference between student and instructor.*

*Information: Same as ART 288.*

Offered: Fall.

**FDC 289 Fashion Design and Clothing Capstone**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Development and creation of individual original garments incorporating skills acquired through previous courses. Includes capstone project overview, development of a five piece collection, and presenting the garment line.

**Prerequisite(s):** FDC 111, 112, 121, 122, 126, 141, 144, 211, 241.

Offered: May not be offered this year, check class schedule.

## Finance

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**FIN 100 Basic Principles of Organizational Finance**

1 cr. hrs. 1 periods (1 lec.)

Introduction to the fundamental principles of finance. Includes basic financial concepts in industry and banking, the role of financial decision-makers, financial statements, common ratios, time value of money, and investment decisions.

Offered: Spring.

**FIN 107 Business Finance**

3 cr. hrs. 3 periods (3 lec.)

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 120 Financial Strategies: Rich Dad Poor Dad**

3 cr. hrs. 3 periods (3 lec.)

Principles, processes and tools that represent a new paradigm for financial literacy based on the book Rich Dad Poor Dad. Includes wealth vocabulary, need for financial literacy, rich don't work for money, teaching financial literacy, cashflow quadrant, power of corporations, rich invent money, work to learn—don't work for money.

Offered: May not be offered this year, check class schedule.

**FIN 190 Internship in Finance**

1-3 cr. hrs. 5-15 periods (5-15 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 217 Analyzing Financial Data**

1 cr. hrs. 1 periods (1 lec.)

Overview of financial data analysis. Includes income statement analysis and interpretation, retained earnings statement, balance sheets, statement of changes in financial position, sources of data, key financial ratios, and analysis procedures.

**Prerequisite(s):** ACC 101.

*Offered: Spring.*

## Fire Science

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**FSC 101 Principles of Emergency Services**

3 cr. hrs. 3 periods (3 lec.)

Introduction to fire protection and emergency services. Includes career opportunities in fire protection and related fields, culture and history of emergency services, fire loss analysis, organization and function of public and private fire protection services, and fire departments as part of local government. Also includes laws and regulations affecting the fire service, fire service nomenclature, specific fire protection functions, basic fire chemistry and physics, introduction to fire protection systems, introduction to fire strategy and tactics, and life safety initiatives.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

*Offered: Fall, Spring.*

**FSC 104 Fire Science Careers**

1-2 cr. hrs. 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 110 Rope I**

1 cr. hrs. 1 periods (1 lec.)

Introduction to basic rope rescue: safety, equipment, rope craft, anchors, mechanical advantage, belay systems, medical considerations, identifying terrain types, low angle evacuations, steep angle evacuations and steep angle rappel. Includes performance in rope craft, anchor construction, mechanical advantage construction, belay technique, patient packaging, low angle evacuations, and steep angle rappelling.

*Information: This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 special operations, NFPA 1670.*

*Offered: Fall.*

**FSC 111 Rope II**

1 cr. hrs. 1 periods (1 lec.)

Continuation of FSC 110. Concepts, techniques, and skills for rope rescue areas: safety, ropecraft, advanced anchors, applied mechanical advantage, belay systems, self-rescue, and high angle pickoffs. Also includes knot passing through technical evacuation systems, rope rescue strategy, and tactics.

*Information: This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 special operations, NFPA 1670.*

*Offered: May not be offered this year, check class schedule.*

**FSC 112 Rope III**

1 cr. hrs. 1 periods (1 lec.)

Continuation of FSC 111. Concepts, techniques, and skills for advanced rope rescue areas: safety, rope craft, anchors, applied mechanical advantage, belay systems, self-rescue, high angle pickoffs, knot passing through technical evacuation systems. Also includes rescue tactics and strategies relating to vertical rescues.

**Prerequisite(s):** FSC 111.

*Information: This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 special operations, NFPA 1670.*

*Offered: May not be offered this year, check class schedule.*

**FSC 116 Confined Space I for First Responders**

1 cr. hrs. 1 periods (1 lec.)

Introduction to confined space rescue operations including the OSHA regulations governing permit requirements for confined spaces. Includes hazards associated with confined space rescues and means to mitigate these hazards. Also includes Incident Command System recommended to manage confined space rescues as well as an introduction to the equipment used in these rescues.

**Recommendation:** Complete FSC 110, 111, 112 and Hazardous Materials First Responder Certification prior to enrolling in this course.

*Information:* This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 special operations, NFPA 1670.

Offered: May not be offered this year, check class schedule.

**FSC 117 Confined Space II for First Responders**

1 cr. hrs. 1 periods (1 lec.)

Continuation of FSC 116. Overview of the OSHA regulations governing permit required confined spaces, the hazards associated with confined space rescues, and the means to mitigate these hazards. Includes an emphasis on the practical application of these concepts through hands-on activities.

**Prerequisite(s):** FSC 116.

**Recommendation:** Complete FSC 110, 111, 112, and Hazardous Materials First Responder Certification prior to enrolling in this course.

*Information:* This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 Special Operations, NFPA 1670.

Offered: May not be offered this year, check class schedule.

**FSC 118 Swift Water Rescue for First Responders**

1 cr. hrs. 1 periods (1 lec.)

Concepts and techniques to prepare the emergency responder to perform swift water rescue. Includes rescuer safety and philosophy, river dynamics, hydrology and hazards, and methods of effecting swift water rescues including boat handling operations. Includes basic water accident management techniques in still water. Also includes the water accident portion of this course taught at a swimming pool and the practical application conducted in moving water.

**Prerequisite(s):** FSC 110, 110, 112.

*Information:* This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 special operations, NFPA 1670.

Offered: May not be offered this year, check class schedule.

**FSC 120 Fire Behavior and Combustion**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the theories and fundamentals of fire behavior and combustion. Includes physical and chemical properties of fire, materials and their relationship to fire as fuel, and the use of water and other fire suppression agents and strategies.

*Information:* This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.

Offered: Fall, Spring.

**FSC 121 Trench Rescue for First Responders**

1.25 cr. hrs. 1.25 periods (1.25 lec.)

Concepts and techniques to prepare the emergency responder to perform trench rescues. Includes rescuer safety, the OSHA regulation governing trench operations, trench hazards and soil classifications, rescue procedures and the creation of safe areas in which to work within the trench.

**Recommendation:** Complete FSC 110, 111, 112, 117 and Hazardous Materials First Responder Certification prior to enrolling in this course.

*Information:* This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 special operations, NFPA 1670.

Offered: May not be offered this year, check class schedule.

**FSC 122 Structural Collapse Rescue for First Responders**

1.25 cr. hrs. 1.25 periods (1.25 lec.)

Concepts and techniques to prepare the emergency responder to perform rescues in collapsed or structurally compromised buildings. Includes rescuer safety, types of building materials and their properties, hazards to rescuers, calculating weights of building materials and their capacities, development of a structural collapse rescue plan, debris removal and possible victim locations. Also includes the FEMA structure marking system, cribbing procedures, and the construction of various shoring systems.

**Prerequisite(s):** FSC 121.

**Recommendation:** Complete FSC 110, 111, 112, 116, and 117 prior to enrolling in this course.

*Information:* This class meets State of Arizona Fire Marshal requirements: NFPA 1983, NFPA 1500 special operations, NFPA 1670.

Offered: May not be offered this year, check class schedule.

**FSC 123 Building Construction Related to the Fire Service**

3 cr. hrs. 3 periods (3 lec.)

Introduction to components of building construction as related to firefighter and life safety. Includes elements of construction and structure design shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies.

**Prerequisite(s):** FSC 101 and 120 with a C or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring.

**FSC 124 Fire Prevention**

3 cr. hrs. 3 periods (3 lec.)

Introduction to fundamental concepts relating to the field of fire prevention. Includes history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use and application of codes and standards, plans review, fire inspections, fire and life safety education, and fire investigation.

**Prerequisite(s):** FSC 101 and 120 with a C or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring.

**FSC 125 Hydraulics and Water Supply**

3 cr. hrs. 3 periods (3 lec.)

Introduction to hydraulics and water supply in fire service. Includes theoretical foundations and principles of water use in fire protection, water distribution systems, and survey of hydraulic principles to analyze and to solve water supply problems.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring.

**FSC 126 Fire Protection Systems in the Fire Service**

3 cr. hrs. 3 periods (3 lec.)

Introduction to fire protection systems in the fire service. Includes features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppressions systems, water supply for fire protection, and portable fire extinguishers.

**Prerequisite(s):** FSC 120 with a C or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring.

**FSC 127 Principles of Emergency Services Safety and Survival**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the basic principles and history related to national firefighter life safety initiatives. Includes cultural and behavioral change, organizational health, safety profile, research investigation, national health and safety, risk management, and publication education of fire and life safety.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring.

**FSC 130 Strength and Fitness for the Fire Service**

2.5 cr. hrs. 2.5 periods (2.5 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 cr. hrs. 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 & II practical evaluations. Only when taken as a part of the Pima Community College Fire Academy can students be concurrently enrolled in FSC 149 and 150.*

Offered: Fall, Spring.

**FSC 150 Fire Operations II**

4 cr. hrs. 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.

**Prerequisite(s):** FSC 149.

*Information: Completion of FSC 149 and 150 will help prepare the student for successful completion of State of Arizona Firefighter I & II practical evaluations. Only when taken as a part of the Pima Community College Fire Academy can students be concurrently enrolled in FSC 149 and 150.*

Offered: Fall, Spring.

**FSC 151 Introduction to Fire Science**

3 cr. hrs. 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.

**Recommendation:** Completion of FSC 149 prior to enrolling in this class or concurrent enrollment in FSC 149 and 150.

Offered: Fall, Spring.

**FSC 152 Fundamentals of Fire Prevention**

3 cr. hrs. 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.

**Prerequisite(s):** FSC 149.

Offered: Fall.

**FSC 153 Hazardous Materials**

1.5 cr. hrs. 1.5 periods (1.5 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 cr. hrs. 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: May not be offered this year, check class schedule.

**FSC 160 Wildland Firefighting**

3 cr. hrs. 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 Arizona Center for Fire Service Excellence and Arizona Department of Forestry Guidelines for Wildland Firefighting Training.*

Offered: Fall, Spring.

**FSC 162 Hydraulics and Fire Suppression**

3 cr. hrs. 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):** FSC 149, 150, 151.

Offered: Fall.

**FSC 163 Fire Apparatus and Equipment**

3 cr. hrs. 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, 150, 151.

Offered: Fall.

**FSC 164 Fire Protection Systems**

3 cr. hrs. 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 152.

Offered: Fall.

**FSC 165 Building Construction for Fire Protection**

3 cr. hrs. 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.

**Prerequisite(s):** FSC 149, 150, 151.

Offered: Fall.

**FSC 166 Fire Suppression, Strategy and Tactics**

3 cr. hrs. 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 165.

Offered: May not be offered this year, check class schedule.

**FSC 167 Rescue Practices for the Fire Service**

2.5 cr. hrs. 2.5 periods (2.5 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.

**Prerequisite(s):** FSC 149.

Offered: Fall, Spring.

**FSC 168 Special Hazard Tactical Problems**

3 cr. hrs. 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.

**Prerequisite(s):** FSC 153.

*Information: Designed for experienced firefighters.*

Offered: May not be offered this year, check class schedule.

**FSC 170 Fire Service Leadership**

3 cr. hrs. 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.

**Prerequisite(s):** FSC 149.

*Information: This course meets National Fire Academy (NFA) requirements for Leadership I, II, and III.*

*Information: FSC 170A, 170B, and 170C together constitute FSC 170.*

Offered: May not be offered this year, check class schedule.

**FSC 170A Fire Service Leadership I**

1 cr. hrs. 1 periods (1 lec.)

Practical training for fire service leadership and supervision. Includes decision-making, problem solving, and running a meeting.

**Prerequisite(s):** FSC 149.

*Information: This course meets National Fire Academy (NFA) requirements for Leadership I, II, and III.*

*Information: FSC 170A, 170B and 170C together constitute FSC 170.*

*Offered: May not be offered this year, check class schedule.*

**FSC 170B Fire Service Leadership II**

1 cr. hrs. 1 periods (1 lec.)

Continuation of FSC 170A. Includes practical training for fire service leadership and supervision. Also includes managing multiple roles, creativity, power, and ethics.

**Prerequisite(s):** FSC 149.

*Information: This course meets National Fire Academy (NFA) requirements for Leadership I, II, and III.*

*Information: FSC 170A, 170B, and 170C together constitute FSC 170.*

*Offered: May not be offered this year, check class schedule.*

**FSC 170C Fire Service Leadership III**

1 cr. hrs. 1 periods (1 lec.)

Continuation of FSC 170B. Includes practical training for fire service leadership and supervision. Also includes situational leadership, delegation, coaching, and discipline.

**Prerequisite(s):** FSC 149.

*Information: This course meets National Fire Academy (NFA) requirements for Leadership I, II, and III.*

*Information: FSC 170A, 170B, and 170C together constitute FSC 170.*

*Offered: May not be offered this year, check class schedule.*

**FSC 173 Records and Reports**

.25-1 cr. hrs. .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.

**Prerequisite(s):** FSC 149.

*Offered: Fall, Spring.*

**FSC 174 Fire Investigation**

3 cr. hrs. 3 periods (3 lec.)

Introduction to fundamental concepts of fire scene investigation. Includes emergency responder responsibilities and observations, conducting origin and cause interpretation, preservation of evidence and documentation, scene security, motives of the fire setter, and elements of fire dynamics.

**Prerequisite(s):** FSC 101, 120 and 123 with a C or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

*Offered: Fall, Spring, Summer.*

**FSC 175 Intro to Fire Investigation: Origin and Recognition of Arson**

3 cr. hrs. 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.

**Prerequisite(s):** FSC 149, 150, 151, 165.

*Offered: Fall.*

**FSC 180 Driver Training for Fire Service**

3 cr. hrs. 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.

**Prerequisite(s):** FSC 149, 150, 151.

*Information: Consent of instructor is required before enrolling in this course.*

*Offered: May not be offered this year, check class schedule.*

**FSC 181 Firefighter Rescue**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

**FSC 185 Advanced Fire Investigation: Arson**

3 cr. hrs. 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.

**Prerequisite(s):** FSC 175.

Offered: May not be offered this year, check class schedule.

**FSC 189 Current Issues in Fire Science**

2 cr. hrs. 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.

**Prerequisite(s):** WRT 101, 102.

*Information: Completion of twenty credits in FSC prefix courses is required before enrolling in this course.*

Offered: Fall, Spring.

**FSC 230 Fire Investigation II**

3 cr. hrs. 3 periods (3 lec.)

Continuation of FSC 174. Principles and advanced concepts of fire investigation. Includes rule of law, fire scene analysis, fire behavior, evidence collection and preservation, scene documentation, case preparation, and courtroom testimony.

**Prerequisite(s):** FSC 174 with a C or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring, Summer.

**FSC 249 Occupational Safety and Health for Emergency Services**

3 cr. hrs. 3 periods (3 lec.)

Concepts of occupational health and safety related to emergency service organizations. Includes risk and hazard evaluation, incident management, occupational health and safety, and control procedures for emergency service organizations.

**Prerequisite(s):** FSC 127 with a C or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring, Summer.

**FSC 250 Principles of Fire and Emergency Services Administration**

3 cr. hrs. 3 periods (3 lec.)

Principles and concepts of administration for the fire and emergency services department. Includes relationship of government agencies to fire service, responsibility and authority, public policy, ethics, and leadership of the company officer.

**Prerequisite(s):** FSC 101 with a C or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring, Summer.

**FSC 251 Hazardous Materials Chemistry**

3 cr. hrs. 3 periods (3 lec.)

Overview of the basic chemistry of hazardous materials. Includes recognition, identification, reactivity, and health hazards encountered by emergency services.

**Prerequisite(s):** FSC 120 with a C grade or better.

*Information: This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.*

Offered: Fall, Spring, Summer.



**FSC 252 Fire Service Strategy and Tactics**

3 cr. hrs. 3 periods (3 lec.)

Principles and tactics of fire service ground control. Includes fireground factors and management, command operations and functions, life safety, personnel, equipment, and extinguishing agents.

**Prerequisite(s):** FSC 120, 123 and 127 with a C grade or better.

*Information:* This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.

Offered: Fall, Spring, Summer.

**FSC 253 Legal Aspects of Emergency Services**

3 cr. hrs. 3 periods (3 lec.)

Overview of the federal, state, and local laws that regulate emergency services. Includes a review of national standards, regulations, and consensus standards.

**Prerequisite(s):** FSC 101 and 250 with a C grade or better.

*Information:* This class is in compliance with the Fire and Emergency Services Higher Education (FESHE) model curriculum.

Offered: Fall, Spring, Summer.

**FSC 260 Fire and Emergency Services Instructor I**

2 cr. hrs. 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.

**Prerequisite(s):** FSC 189.

*Information:* Consent of instructor is required before enrolling in this course concurrently with FSC 189.

*Information:* Meets the requirements for the Arizona State Fire Marshal Instructor I certification and NFPA 1041.

Offered: May not be offered this year, check class schedule.

**FSC 261 Fire and Emergency Services Instructor II**

2 cr. hrs. 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.

**Prerequisite(s):** FSC 260.

*Information:* Consent of instructor is required to enroll in this course concurrently with FSC 260.

*Information:* Meets the requirements for the Arizona State Fire Marshal Instructor II certification and NFPA 1041.

Offered: May not be offered this year, check class schedule.

**FSC 270 Leadership I for Fire Service Executives**

1 cr. hrs. 1 periods (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.

**Prerequisite(s):** FSC 170.

Offered: May not be offered this year, check class schedule.

**FSC 271 Leadership II for Fire Service Executives**

1 cr. hrs. 1 periods (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, and executive leadership.

**Prerequisite(s):** FSC 270.

Offered: May not be offered this year, check class schedule.

**FSC 272 Leadership III for Fire Service Executives**

1 cr. hrs. 1 periods (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 and unethical persuasion, and the media.

**Prerequisite(s):** FSC 271.

Offered: May not be offered this year, check class schedule.

**FSC 273 Leadership IV for Fire Service Executives**

1 cr. hrs. 1 periods (1 lec.)

Continuation of FSC 272. Includes the local fire department in relation to its city government, local policy development. Also includes legal aspects of the city and department procedures, relationships with organized labor, networking and community relations, relations with local and state fire service providers, and understanding the national and international fire service.

**Prerequisite(s):** FSC 272.

Offered: May not be offered this year, check class schedule.

**FSC 274 Leadership V for Fire Service Executives**

1 cr. hrs. 1 periods (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.

**Prerequisite(s):** FSC 273.

Offered: May not be offered this year, check class schedule.

**FSC 275 Leadership VI for Fire Service Executives**

1 cr. hrs. 1 periods (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.

**Prerequisite(s):** FSC 274.

Offered: May not be offered this year, check class schedule.

**FSC 280 Fire Chief Preparation**

4 cr. hrs. 4 periods (4 lec.)

Preparation for professional fire personnel to become chief officers. Includes incident command, communication, and disaster management.

Offered: May not be offered this year, check class schedule.

## Fitness and Sport Sciences

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**FSS 155 Athletic-Academic Success**

2 cr. hrs. 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 208 Professional Activities: Aerobics and Group Fitness**

2 cr. hrs. 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.

**Prerequisites(s):** FSS 234 or concurrent enrollment, and WRT 100 or 106 or placement into WRT 101 on the writing assessment.

**Recommendation:** FSS 208 and 277 taken concurrently is highly recommended.

*Information: This course requires physical activity and is intended for students pursuing the Fitness Professional Certificate.*

Offered: Spring.

**FSS 218 Professional Activities: Weight Training**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Introduction to the basic resistance training principles. Includes history, anatomy and physiology, biomechanics, weight training principles and concepts, program development and assessment, and programming.

**Prerequisites(s):** FSS 234 or concurrent enrollment, and WRT 100 or 106 or placement into WRT 101 on the writing assessment.

**Recommendation:** FSS 218 and 276 taken concurrently is highly recommended.

*Information: This course requires physical activity and is intended for students pursuing the Fitness Professional Certificate.*

Offered: Fall.

**FSS 234 Fundamentals of Exercise Science**

4 cr. hrs. 4 periods (4 lec.)

Overview of various systems, reactions and adaptations to exercise and movement. Includes structure and function of human anatomy and physiology of the skeletal support system, muscular system, nervous system, endocrine system, cardiovascular system, respiratory system, biomechanics, and metabolism.

**Prerequisites:** REA 091 or placement into REA 112 on the reading assessment, and WRT 100 or 106 or placement into WRT 101 on the writing assessment.

*Information: This course will count toward the required courses in the Fitness Professional and Coaching certificates. Students intending to transfer into a four-year program or university are advised to seek further information regarding transferability. Fitness Professional students are expected to enroll in this course prior to, or concurrently with, other core courses in the program, specifically FSS 276 and/or FSS 218 (Fall) or FSS 277 and/or FSS 208 (Spring).*

Offered: Fall, Spring.

**FSS 236 Communication and Exercise Adherence**

2 cr. hrs. 2 periods (2 lec.)

Communication skills and interviewing techniques for personal trainers. Includes theories of motivation, the trans-theoretical model and stages of change, and communication techniques.

**Prerequisite(s):** WRT 100 or 106 or satisfactory score on the writing assessment test.

*Information: This course is intended for the Fitness Professional program and continuing education for fitness professionals, coaches, and physical education teachers.*

Offered: Fall.

**FSS 238 Introduction to Sports Injury Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction to principles and techniques of preventing, recognizing, treating, and rehabilitating sports related injuries. Includes overview of sports injury management, recognition of common sports injuries, taping/wrapping techniques, principles of rehabilitation, and event preparation and risk management.

**Prerequisites(s):** WRT 100 or 106 or placement into WRT 101 on the writing assessment.

Offered: Fall, Spring, Summer.

**FSS 241 Nutrition for Exercise and Sport**

3 cr. hrs. 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):** MAT 086, REA 091, and WRT 100 or 106, or satisfactory score on the Mathematics, Reading and Writing assessment tests.

*Information: This course is intended for the Fitness Professional and professional development for coaches.*

Offered: Fall, Summer.

**FSS 260 Business Practices for the Personal Trainer**

3 cr. hrs. 3 periods (3 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.*

*Information: 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**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Exercise management for persons with chronic diseases. Includes medical model health appraisal, allied health profession referrals, chronic disease and disabilities, and functional exercise adaptations.

**Prerequisites(s):** FSS 218, 276.

*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. Students who are not currently certified as personal trainers must be in the second or later semester of the certificate program before enrolling in this course.*

Offered: Spring.

**FSS 270 Advanced Principles for Athletic Conditioning**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Advanced theory and application of training principles for athletes. Includes safety and personal health issues, strength and conditioning principles, testing and evaluation, exercise techniques, and program design.

**Prerequisites(s):** FSS 218, 234, 276, WRT 100 or 106 or placement into WRT 101 on the writing assessment.

*Information: This course requires physical activity. This course is intended for the Fitness Professions Certificate program and continuing education for fitness professionals, coaches, and physical education teachers.*

Offered: Spring.

**FSS 271 Sport Psychology**

3 cr. hrs. 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.

**Prerequisites(s):** WRT 100 or 106 or placement into WRT 101 on the writing assessment.

*Information: This course is intended for the Coaching Certificate program and continuing education for fitness professionals, coaches, and physical education teachers.*

Offered: Spring.

**FSS 272 Coach Techniques/Practices**

3 cr. hrs. 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.

**FSS 273 Sport Physiology**

3 cr. hrs. 3 periods (3 lec.)

Principles of fitness training for peak performance. Includes sport physiology and the athlete, training for muscular and energy fitness, designing training programs, and producing peak performance.

**Prerequisites(s):** WRT 100 or 106 or placement into WRT 101 on the writing assessment.

*Information: This course is intended for the Coaching Certificate program and continuing education for fitness professionals, coaches, and physical education teachers.*

Offered: Spring.

**FSS 276 Personal Trainer: Muscular Strength, Endurance, Flexibility**

3 cr. hrs. 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.

**Prerequisites(s):** FSS 234 or concurrent enrollment, REA 091 or placement into REA 112 on the reading assessment, and WRT 100 or 106 or placement into WRT 101 on the writing assessment.

**Recommendation:** FSS 218 and 276 taken concurrently is highly recommended.

*Information: This course requires physical activity and is intended for students pursuing the Fitness Professional Certificate.*

Offered: Fall.

**FSS 277 Personal Trainer: Cardiovascular Endurance/Body Composition**

3 cr. hrs. 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 Specific/Measurable/Action-Oriented/Realistic/Time Bound (SMART) goals, program development, and special considerations.

**Prerequisites(s):** FSS 234 or concurrent enrollment, REA 091 or placement into REA 112 on the reading assessment, and WRT 100 or 106 or placement into WRT 101 on the writing assessment.

**Recommendation:** FSS 208 and 277 taken concurrently is highly recommended.

*Information: This course requires physical activity and is intended for students pursuing the Fitness Professional Certificate.*

Offered: Spring.

**FSS 279 Motor Development**

2 cr. hrs. 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. Also includes effects of early stimulation, social and motor development, psychological changes, motor assessment, and planning and conducting a motor development program.

**Prerequisite(s):** FSS 243/243A/243B or concurrent enrollment.

*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 280 Lifestyle and Weight Management Consultant**

1 cr. hrs. 1 periods (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.

**Prerequisite(s):** FSS 236 or concurrent enrollment.

*Information:* This course is intended for the Fitness Professional program and continuing education for fitness professionals, coaches, and physical education teachers.

*Information:* Students must complete a Nutrition course at the 100 level or higher prior to, or concurrently with this course.

Offered: Fall.

**FSS 281 Personal Trainer Exam Preparation**

1 cr. hrs. 1 periods (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.

**Prerequisite(s):** Successful completion of or current enrollment in FSS 208, 218, 234, 276, and 277.

*Information:* Prerequisites may be waived with consent of instructor.

Offered: Fall, Spring.

**FSS 285 Principles of Athletic Coaching**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the principles of athletic coaching. Includes principles of behavior, teaching, physical training, and management.

**Prerequisites:** WRT 100 or 106 or placement into WRT 101 on the writing assessment.

Offered: Spring.

**FSS 291 Fitness and Sports Sciences Internship**

3 cr. hrs. 11 periods (1 lec., 10 lab)

Volunteer fitness professional field experience at an approved work site. Includes communication in the fitness facility, positive work attitudes and practices, fitness professional ethics, progress review, fitness professional systems, and professional development. Also includes employment strategies, final evaluation, employment interview, and fitness professional field experience.

**Prerequisite(s):** FSS 208, 218, 234, 236, 276, and 277.

*Information:* May be taken concurrently with program elective and/or FSS 281. Designed for students in their final semester of course work in the Fitness Professional Certificate program. This course requires approximately 150 hours of supervised internship time at two or more facilities, averaging 10 hours per week for a traditional 16 semester and is adjusted accordingly for more accelerated time periods.

Offered: Fall, Spring.

**FSS 296 Independent Study in Fitness and Sport Sciences**

1-4 cr. hrs. 1-4 periods (1-4 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 eight credit hours. Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

**FSS 299 Co-op: Fitness Professional**

1 cr. hrs. 1 periods (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 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 later upon satisfactory completion of either FSS 276 or FSS 277.*

*Offered: May not be offered this year, check class schedule.*

**FSS 299WK Co-op Work: Fitness Professional**

2 cr. hrs. 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. This course is intended for the Fitness Professional program and may be taken in the 2nd semester or later upon satisfactory completion of either FSS 276 or FSS 277.*

*Offered: May not be offered this year, check class schedule.*

## Fitness and Wellness

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**FAW 103 Lifeguarding**

1 cr. hrs. 2 periods (2 lab)

Introduction to the profession of lifeguarding. Includes essential water and personal safety, life saving strokes and procedures, rescues and escapes, injury management, surveillance techniques, and preventative safety strategies.

*Information: Students must possess a current American Red Cross (ARC) Certification in Basic First Aid and CPR for the Professional Rescuer before enrolling in this course and must complete an American Red Cross swimming proficiency pre-test.*

*Information: This course follows the American Red Cross Life Guarding curriculum and successful completion leads to a three (3) year ARC certification.*

*Information: A program fee may be required to cover ARC certification records.*

*Information: May be taken three times for a maximum of three credit hours.*

*Offered: May not be offered this year, check class schedule.*

**FAW 104F1 Conditioning: For Physically Demanding Jobs**

1 cr. hrs. 2 periods (2 lab)

Total body conditioning designed to prepare or enhance fitness required for physically demanding professions such as law enforcement, fire fighting, or the military. Includes personal safety and preparation, fitness assessments and goal setting, designing an individualized program, programmatic instruction and conditioning, and reassessment and goal setting.

*Information: This course is intended for individuals who are preparing for a job related physical fitness test or who have physically demanding jobs.*

*Information: May be taken three times for a maximum of three credit hours.*

*Offered: May not be offered this year, check class schedule.*

**FAW 104F2 Conditioning: Speed, Agility, and Quickness**

1 cr. hrs. 2 periods (2 lab)

Total body conditioning designed to enhance sport-related fitness for athletes or fitness enthusiasts. Includes personal safety and preparation, fitness assessments and goal setting, relationship of sport to health related fitness components, designing an individualized program, programmatic instruction and conditioning, and reassessment and goal setting. Also includes focus on the development of agility, balance, coordination, power, reaction time, and speed in sports or activities requiring these skills.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for individuals who have been participating in regular conditioning or sport activities.*

*Offered: Spring.*

**FAW 106F1 Individual Fitness: Bicycling**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular conditioning, improved fitness, and weight management through various cycling workouts. Includes an introduction to cycling, components of training, heart rate zone training, bike preparation and terminology, cycling health and personal safety, designing your training program, and pacing and group riding skills. Also includes cycling techniques, cardiovascular fitness assessment, goal setting, and workout types for specific goals and distances.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: All rides will be on roadways and riders must have their own bicycles; however, road or racing bicycles are not required.*

*Information: Helmets are required.*

*Offered: May not be offered this year, check class schedule.*

**FAW 106F2 Individual Fitness: Running**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular conditioning through running and walk/run workouts intended for the beginning and intermediate runner. Includes an introduction to running, components of training, heart rate zone training, the distances, running health and safety, and designing your training program. Also includes stride technique, proper alignment, cardiovascular fitness assessment, goal setting, and workout types for specific goals and distances.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is suitable for students who wish to run a few miles a week to those training for distances up to a marathon.*

*Offered: Fall, Spring.*

**FAW 106F3 Individual Fitness: Swimming**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular conditioning through lap swimming. Includes basic stroke review, techniques of endurance swimming, and assessment and improvement of cardiovascular fitness level.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is not suitable for students with a fear of water or who do not have some initial swimming skill (novices).*

*Offered: Fall, Spring.*

**FAW 106F4 Individual Fitness: Walking**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular conditioning, improved fitness, and weight management through various walking workouts. Includes introduction to walking, components of training, heart rate zone training, common faults, walking health and personal safety, designing your training program, and race walking techniques. Also includes stride technique, proper alignment, cardiovascular fitness assessment, goal setting, and workout types for specific goals and distances.

*Information: May be taken three times for a maximum of three credit hours.*

*Offered: Fall, Spring.*

**FAW 108 Senior Fitness**

1 cr. hrs. 2 periods (2 lab)

Introduction to a personalized fitness program using resistance, cardiovascular, and flexibility training for older adults. Includes orientation to the fitness facility, evaluation of personal fitness status and needs, principles of basic program design, and benefits of healthy lifestyle choices. Also includes choosing appropriate exercises to meet individual goals, and developing initial training strategies for improving body total fitness.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is appropriate for healthy older adults who have a desire to maintain or increase their activity levels.*

*Offered: Fall.*

**FAW 109 Triathlon Training: Swimming**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular conditioning for triathlon, biathlon, and distance swimming events. Includes essential personal safety and equipment, basic stroke development review, endurance swimming techniques, improving cardiovascular fitness level and event management.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for students interested in competitive distance swimming.*

*Offered: Fall, Spring, Summer.*

**FAW 110F1 Weight Training and Cardiovascular Fitness Level I**

1 cr. hrs. 2 periods (2 lab)

Introduction to a personalized fitness program using resistance, cardiovascular, and flexibility training. Includes orientation to the fitness facility, evaluation of personal fitness status and goal setting, principles of basic program design, and benefits of healthy lifestyle choices.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is appropriate for students desiring to improve either health fitness or athletic performance and may NOT be taken concurrently with FAW 110F2 or FAW 110F3.*

Offered: Fall, Spring, Summer.

**FAW 110F2 Weight Training and Cardiovascular Fitness Level I Extended**

2 cr. hrs. 4 periods (4 lab)

Introduction to a personalized fitness program using resistance, cardiovascular, and flexibility training. Includes orientation to the fitness facility, evaluation of personal fitness status and goal setting, principles of basic program design, and benefits of healthy lifestyle choices.

*Information: May be taken two times for a maximum of four credit hours.*

*Information: This course is appropriate for students desiring to improve either health fitness or athletic performance and may NOT be taken concurrently with FAW 110F1 or FAW 110F3.*

*Information: This course requires twice the time commitment for working out as FAW 110F1.*

Offered: Fall, Spring, Summer.

**FAW 110F3 Weight Training and Cardiovascular Fitness Level II**

2 cr. hrs. 4 periods (4 lab)

Continuation of FAW 110F1 or FAW 110F2. Includes orientation to the fitness facility, evaluation of personal fitness status and needs, principles of program design, and benefits of healthy lifestyle choices.

**Prerequisite(s):** FAW 110F1 or 110F2.

*Information: May be taken two times for a maximum of four credit hours.*

*Information: This course is appropriate for students desiring to improve either health fitness or athletic performance and may NOT be taken concurrently with FAW 110F1 or FAW 110F2.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring, Summer.

**FAW 112F1 Ballroom/Latin Dance I**

1 cr. hrs. 2 periods (2 lab)

Introduction to ballroom and Latin dancing with emphasis on basic steps, turns, and varied techniques of traditional dances. Includes key components of each dance, floorwork/locomotor skills, dancing as a total activity, and evaluation.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: Traditional ballroom dances covered are the six majors: Foxtrot, Waltz, East Coast Swing, Tango, Cha Cha, and Rumba.*

*Information: Other popular social dances that may be covered are the Salsa/Mambo, Night Club Two Step, and West Coast Swing.*

*Information: This course is intended for recreational ballroom dance and will not be accepted for the Associate of Fine Arts Dance Concentration.*

Offered: Fall, Spring.

**FAW 112F2 Ballroom/Latin Dance II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 112F1. Includes key components of each dance, floorwork/locomotor skills, dancing as a total activity, and evaluation. Also includes emphasis on combinations, smooth transitions, and complex rhythmic patterns for the six major Ballroom dances.

**Prerequisite(s):** FAW 112F1.

*Information: Other popular social dances that may be covered are the Salsa/Mambo, Night Club Two Step, and West Coast Swing.*

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for recreational ballroom dance and will not be accepted for the Associate of Fine Arts Dance Concentration.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.



**FAW 113F1 Belly Dance I**

1 cr. hrs. 2 periods (2 lab)

Introduction to Egyptian, Turkish, and American belly dance with emphasis on foot placement and efficient execution of basic skills. Includes key components of belly dance and dancing as a total activity. Also includes history of belly dance; dance terminology; developing stamina, strength, balance, flexibility, endurance, and coordination; organizing dancing patterns into complete routines; and learning to improvise.

*Information: This course is intended for recreational belly dance and will not be accepted for the Associate of Fine Arts Dance Concentration.*

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring, Summer.

**FAW 113F2 Belly Dance II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 113F1. Includes key components of each dance, class protocol, dancing as a total activity and evaluation.

**Prerequisite(s):** FAW 113F1.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

*Information: This course is for those experienced in Belly Dance.*

Offered: Fall, Spring.

**FAW 114 Country Western Dance**

1 cr. hrs. 2 periods (2 lab)

Introduction to Country Western dancing with emphasis on dance terminology, rhythms, styles, essential steps and combinations. Includes key components of Country Western dance, floorwork/locomotor skills, dancing as a total activity, and evaluation. Also includes developing stamina, strength, balance, coordination, and organizing dancing patterns into complete routines.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for recreational Country Western dance and will not be accepted for the Associate of Fine Arts Dance Concentration.*

Offered: May not be offered this year, check class schedule.

**FAW 123F1 Salsa/Latin Dance I**

1 cr. hrs. 2 periods (2 lab)

Introduction to salsa and other Latin dances with emphasis on basic steps, turns, and techniques to build confidence for dancing socially. Includes key components of each dance, floorwork/locomotor skills, dancing as a total activity, and evaluation. Also includes history of salsa, dance terminology, developing stamina, strength and balance, organizing dancing patterns into complete routines, and learning to improvise.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for recreational Salsa dance and will not be accepted for the Associate of Fine Arts Dance Concentration.*

Offered: Fall, Spring, Summer.

**FAW 123F2 Salsa/Latin Dance II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 123F1. Salsa and other Latin dances for the more experienced dancer with emphasis on combinations, smooth transitions, and complex rhythmic patterns of salsa dance. Includes key components of each dance, floorwork/locomotor skills, dancing as a total activity, and evaluation. Also includes organizing dancing patterns in choreographies, improvisation, development of personal style, harmonizing movements with a partner, and increasing confidence for dancing in public.

**Prerequisite(s):** FAW 123F1.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for recreational Salsa dance and will not be accepted for the Associate of Fine Arts Dance Concentration.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: May not be offered this year, check class schedule.

**FAW 126 West Coast Swing**

1 cr. hrs. 2 periods (2 lab)

Introduction to West Coast Swing dancing with emphasis on dance terminology, rhythms, styles, essential steps and combinations. Includes key components of West Coast Swing, floorwork/locomotor skills, dancing as a total activity, and evaluation. Also includes developing stamina, strength, balance, coordination, and organizing dancing patterns into complete routines.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for recreational West Coast Swing dance and will not be accepted for the Associate of Fine Arts Dance Concentration.*

Offered: May not be offered this year, check class schedule.

**FAW 128F1 Aerobics**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular exercises generally set to music and performed rhythmically. Includes personal safety and preparation, personal fitness assessment and activity modifications, and elements of rhythmic aerobic routines. Also includes determination of cardiovascular endurance level and challenging that system, improving local muscular endurance, and flexibility.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Summer.

**FAW 128F2 Aerobics: Aqua Fitness**

1 cr. hrs. 2 periods (2 lab)

Improved cardiovascular and muscular strength, endurance and flexibility through non-impact movement in shallow and deep water. Includes essential water and personal safety, movement in the water, and assessing fitness. Also includes utilizing water resistance to improve current fitness level and joint range of motion while minimizing stress to the joint.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: May not be offered this year, check class schedule.

**FAW 128F3 Aerobics: Cardio Cross-Training**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular exercises generally set to music and performed rhythmically. Includes personal safety and preparation, personal fitness assessment and activity modifications, elements of rhythmic aerobic routines, and elements of interval training.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course will utilize a variety of aerobic modalities which may include floor exercise, steps, and interval training.*

Offered: Fall, Spring, Summer.

**FAW 128F4 Aerobics: Cardio-Kickboxing**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular exercises generally set to music, performed rhythmically, and patterns simulate the movements of kickboxing (upper and lower body strikes) without physical contact. Includes personal safety and preparation, personal fitness assessment and activity modifications, and elements of rhythmic aerobic routines.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring.

**FAW 128F5 Aerobics: Plus-Sized Exercise**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular exercises generally set to music and performed rhythmically. Includes personal safety and preparation, personal fitness assessment and activity modifications, and elements of rhythmic aerobic routines. Also includes determination of cardiovascular endurance level and challenging that system, improving local muscular endurance, flexibility, and principles and techniques for warming up and cooling down safely.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This low-impact, personally modified course is intended for students who are overweight and who do not consider themselves ready for a traditional aerobics-style course.*

Offered: Fall, Spring.

**FAW 128F6 Aerobics: Step**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular exercises set to music, performed rhythmically using basic to complex stepping patterns on the floor and on a raised platform. Includes personal safety and preparation, personal fitness assessment and activity modifications, and elements of rhythmic aerobic routines. Also includes determination of cardiovascular endurance level and challenging that system, improving local muscular endurance, and flexibility.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring.

**FAW 129F1 Aerobi-Dance: Jazz Fitness**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular strength conditioning set to music and incorporating jazz dance steps in choreographed group exercise. Includes personal safety and preparation, personal fitness assessment and activity modifications, and elements of rhythmic aerobic routines.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is an aerobics course using methods common to Jazz but it is not a Jazz dance course and will not be accepted for credit in the Associate of Fine Arts Dance Concentration.*

Offered: May not be offered this year, check class schedule.

**FAW 129F2 Aerobi-Dance: Tap Fitness**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular strength conditioning set to music and incorporating tap dance steps in choreographed group exercise. Includes personal safety and preparation, personal fitness assessment and activity modifications, and elements of rhythmic aerobic routines.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is an aerobics course using methods common to tap but it is not a Tap Dance course and will not be accepted for credit in the Associate of Fine Arts Dance Concentration.*

Offered: Fall.

**FAW 129F3 Aerobi-Dance: Latin Rhythms**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular and muscular exercises inspired by Latin dance and music. Includes personal safety and preparation, personal fitness assessment and activity modification, and elements of rhythmic aerobic routines.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course may include combinations from cumbia, merengue, salsa, reggaeton, mambo, rumba, flamenco, calypso, or Salsaton.*

*Information: Music selections include both fast and slow rhythms to help tone and sculpt the body.*

Offered: Fall, Spring, Summer.

**FAW 130 Boot Camp Style Circuit Training**

1 cr. hrs. 2 periods (2 lab)

Total body conditioning using various exercises, stations, and equipment which provide a cardiovascular challenge while emphasizing development of muscular strength and endurance. Includes personal safety and preparation, personal fitness assessment and activity modifications, and techniques and considerations for exercise. Also includes work on flexibility, agility, balance, and coordination with emphasis on personal fitness development.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring, Summer.

**FAW 131 Indoor Cycling**

1 cr. hrs. 2 periods (2 lab)

Cardiovascular conditioning set to music and performed on a stationary bicycle. Includes personal safety and preparation, key concepts, personal fitness assessment and activity modifications, and elements of indoor cycling training. Also includes determination of cardiovascular endurance level and challenging that system, improving local muscular endurance, and flexibility.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring, Summer.

**FAW 132 Kickboxing**

1 cr. hrs. 2 periods (2 lab)

Total body conditioning using various kickboxing exercises, stations, and equipment that provide a cardiovascular challenge while emphasizing development of muscular strength and endurance through upper and lower body striking activities. Includes personal safety and preparation, personal fitness assessment and activity modifications, and kickboxing skill development.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: Students are expected to provide their own bag gloves or hand wraps for contact with the bags and pads.*

*Information: Music may be used for motivation during the course but this is not a choreographed class.*

**Offered:** Fall, Spring, Summer.

**FAW 134F1 Pilates I**

1 cr. hrs. 2 periods (2 lab)

Introduction to the six core principles of Pilates in individual exercises and sequences of movements. Includes key components of Pilates, integrative practice and personalizing one's practice. Also includes total body conditioning to improve strength, flexibility, coordination, proper body alignment, breath control, and overall body awareness.

*Information: This course does not use reformers and is primarily mat based.*

*Information: May be taken three times for a maximum of three credit hours.*

**Offered:** Fall, Spring, Summer.

**FAW 134F2 Pilates II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 134F1. Includes key components of Pilates, six core/essential principles of Pilates exercises, integrative practice, and personalizing one's practice.

**Prerequisite(s):** FAW 134F1.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for students who have established a practice of the basic Pilates exercises, does not use reformers, and is primarily mat based.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

**Offered:** May not be offered this year, check class schedule.

**FAW 136 Stretch and Tone**

1 cr. hrs. 2 periods (2 lab)

Muscular strength, endurance, and flexibility exercises designed to improve total body fitness with exercises generally set to music. Includes personal safety and preparation, personal fitness assessment and activity modifications, and techniques and considerations for exercise.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course includes some cardiovascular challenge but primary emphasis is on local muscular development (strength and flexibility) and assessment of personal fitness.*

**Offered:** Fall, Spring, Summer.

**FAW 138F1 Yoga I**

1 cr. hrs. 2 periods (2 lab)

Introduction to stress reduction through yoga. Includes key components of yoga, essential movements and postures, mind-body practice, and personalizing one's practice.

*Information: May be taken three times for a maximum of three hours.*

*Information: There are many styles of yoga and the specific philosophy offered in a given section will reflect that of the instructor; however, this course is gentle to moderate intensity.*

**Offered:** Fall, Spring, Summer.

**FAW 138F2 Yoga II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 138F1. Includes key components of yoga, essential and complex movements and postures, mind-body practice, and personalizing one's practice.

**Prerequisite(s):** FAW 138F1.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is designed for students who have begun to establish a personal home practice and involves a deepening of the foundations established in Yoga I with more challenging postures, breathing techniques, length of sequences of skills, meditation, and philosophy.*

*Information: There are many styles of yoga and the specific philosophy offered in a given section will reflect that of the instructor and may differ slightly from other Yoga II instructors.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**FAW 138F3 Yoga off the Mat**

1 cr. hrs. 2 periods (2 lab)

Development of an individual yoga practice appropriate for individuals in the workplace, and/or for those with limited mobility, without using floor mats, to optimize performance, manage stress and increase health and well being. Includes key components of Yoga, adapting essential movements and postures, mind-body practice, and personalizing one's practice.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course will be taught in a traditional classroom setting to simulate the workplace environment.*

*Information: Students may participate in street clothes.*

*Information: Postures may include sitting or standing as physical abilities allow.*

Offered: May not be offered this year, check class schedule.

**FAW 148F1 Golf I**

1 cr. hrs. 2 periods (2 lab)

Fundamentals of golf intended for the novice or player with limited experience. Includes emphasis on grips, stance, swing, shot selection, putting, rules, and etiquette of the game. Also includes key components of each shot, essentials for game play, and game management.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: A required range and/or course fee will be payable to the golf course.*

Offered: Fall, Spring, Summer.

**FAW 148F2 Golf II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 148F1. Includes review of the fundamentals, key components of each shot, essentials for game play, and game management.

**Prerequisite(s):** FAW 148F1.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: A required range and/or course fee will be payable to the golf course.*

*Information: This course is intended for golfers with some experience or who play regularly and wish to refine physical skills and mental strategies to improve performance.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**FAW 151 Pickle-Ball**

1 cr. hrs. 2 periods (2 lab)

Fundamentals of Pickle-Ball, a shortened court variation of tennis and badminton played with paddles. Includes key components of Pickle-Ball, fundamental stroke development, and game management.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for skill development and recreational play and is similar to, but requires less court coverage than, tennis.*

Offered: May not be offered this year, check class schedule.

**FAW 152 Racquetball**

1 cr. hrs. 2 periods (2 lab)

Fundamentals of racquetball with emphasis on grips, stance, swing, serving, shot selection, court position, and etiquette. Includes key components of racquetball, fundamental stroke development, and game management.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for skill development and recreational play.*

*Information: Students must supply their own racquets and safety glasses.*

**Offered:** May not be offered this year, check class schedule.

**FAW 155F1 Tennis I**

1 cr. hrs. 2 periods (2 lab)

Fundamentals of tennis intended for the novice or player with limited experience. Includes key components of tennis, fundamental stroke development, and game management.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for skill development and recreational play.*

**Offered:** Fall, Spring, Summer.

**FAW 155F2 Tennis II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 155F1. Includes review of the key components of tennis, fundamental strokes, shot variations, and game management.

**Prerequisite(s):** FAW 155F1.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for players with some playing experience who wish to refine physical skills and mental strategies to improve performance.*

*Information: Recreational competitive play with more emphasis on game strategy is stressed.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

**Offered:** Spring.

**FAW 156 Wrestling**

1 cr. hrs. 2 periods (2 lab)

Introduction to Folk, Free-Style, and Greco-Roman wrestling. Includes key components of wrestling, match strategies, and conditioning, safety, and hygiene.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: This course is intended for students with varying degrees of experience in wrestling and a desire to improve their own knowledge and skill in the sport.*

*Information: Emphasis on development of fundamental offensive and defensive combative skills in drills and match-like situations.*

**Offered:** May not be offered this year, check class schedule.

**FAW 157F1 Aikido I**

1 cr. hrs. 2 periods (2 lab)

Introduction to the fundamentals of Aikido. Includes key components of Aikido, physical and mental preparation, ukemi and basic stances, neutralizing attacks, and budo implements.

*Information: May be taken three times for a maximum of three credit hours.*

**Offered:** Fall, Spring.

**FAW 157F2 Aikido II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 157F1. Includes key components of Aikido, physical and mental preparation, ukemi and basic stances, neutralizing attacks, and budo implements.

**Prerequisite(s):** FAW 157F1.

*Information: May be taken three times for a maximum of three credit hours. Prerequisite(s) may be waived with consent of instructor.*

**Offered:** May not be offered this year, check class schedule.

**FAW 163 Self Defense for Women**

1 cr. hrs. 2 periods (2 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 three times for a maximum of three credit hours.*

Offered: Fall, Spring.

**FAW 164F1 Tae Kwon Do I**

1 cr. hrs. 2 periods (2 lab)

Introduction to the fundamentals of Tae Kwon Do. Includes essentials of Tae Kwon Do, personal preparation, and self defense techniques against an opponent.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring.

**FAW 164F2 Tae Kwon Do II**

1 cr. hrs. 2 periods (2 lab)

Continuation of FAW 164F1. Includes essentials of Tae Kwon Do, personal preparation, self defense techniques against an opponent, and application of advanced skills.

**Prerequisite(s):** FAW 164F1.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall, Spring.

**FAW 165 T'ai-chi Chuan**

1 cr. hrs. 2 periods (2 lab)

Fundamentals of T'ai-chi Chuan, a form of martial arts. Includes an introduction, principles, T'ai-chi for a healthier lifestyle, solo exercises, and self defense.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring.

**FAW 167 Baseball**

1 cr. hrs. 2 periods (2 lab)

Fundamental baseball skills for the recreational player. Includes key components of baseball, individual skills, and team skills.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: May not be offered this year, check class schedule.

**FAW 168 Basketball**

1 cr. hrs. 2 periods (2 lab)

Fundamental basketball skills for the recreational player. Includes key components of basketball, individual skills, and team skills.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring.

**FAW 170 Soccer**

1 cr. hrs. 2 periods (2 lab)

Fundamental soccer skills for the recreational player. Includes key components of soccer, individual skills, and team skills.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Spring.

**FAW 171F1 Softball: Fast Pitch**

1 cr. hrs. 2 periods (2 lab)

Fundamental fast pitch softball skills for the recreational player. Includes key components of fast pitch softball, individual skills, and team skills.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: Students must supply their own gloves.*

Offered: May not be offered this year, check class schedule.

**FAW 171F2 Softball: Slow Pitch**

1 cr. hrs. 2 periods (2 lab)

Fundamental slow pitch softball skills for the recreational player. Includes key components of slow pitch softball, individual skills, and team skills.

*Information: May be taken three times for a maximum of three credit hours.*

*Information: Students must supply their own gloves.*

*Offered: May not be offered this year, check class schedule.*

**FAW 173 Volleyball**

1 cr. hrs. 2 periods (2 lab)

Fundamental volleyball skills for the recreational player. Includes offensive and defensive systems and strategies, conditioning, and game play.

*Information: May be taken three times for a maximum of three credit hours.*

*Offered: Fall, Spring.*

**FAW 180 Weight Management Strategies**

1 cr. hrs. 1 periods (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 three times for a maximum of three credit hours.*

*Offered: Fall, Spring.*

## Food Science and Nutrition

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**FSN 127IN Human Nutrition and Biology**

4 cr. hrs. 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.*

*Information: Same as BIO 127IN.*

*Offered: Fall, Spring.*

**FSN 154 Nutrition**

3 cr. hrs. 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.*

## Foundations for Personal Change

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**FPC 107 Teamwork**

1 cr. hrs. 1 periods (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.*



## French

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### **FRE 050 Social and Cultural French: Food Traditions and Dining**

2 cr. hrs. 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 101 Elementary French I SUN# FRE 1101**

4 cr. hrs. 4 periods (4 lec.)

Introduction to the French language. Includes developing proficiency in pronunciation, communication, basic grammar, and introduction to French culture.

Offered: Fall, Spring, Summer.

### **FRE 102 Elementary French II SUN# FRE 1102**

4 cr. hrs. 4 periods (4 lec.)

Continuation of FRE 101. Includes increased proficiency in pronunciation, communication, and basic grammar. Also includes French cultural traditions.

**Prerequisite(s):** FRE 101.

Offered: Fall, Spring, Summer.

### **FRE 106 Conversational French**

3 cr. hrs. 3 periods (3 lec.)

Introduction to conversational French. Includes basic oral and written forms, simple grammatical structures for oral and written communication, simple interpersonal communicative interaction, various interpersonal transactions, and cultural perspectives. Also includes reading, writing, speaking, and listening with emphasis on communication.

Offered: May not be offered this year, check class schedule.

### **FRE 201 Intermediate French I SUN# FRE 2201**

4 cr. hrs. 4 periods (4 lec.)

Continuation of FRE 102. Includes an intensive review of pronunciation, communication, and advanced grammar. Also includes French cultural traditions.

**Prerequisite(s):** FRE 102.

*Information: Prerequisite(s) may be waived with two years of high school French.*

*Information: This course will be conducted primarily in French.*

Offered: Fall, Spring.

### **FRE 202 Intermediate French II SUN# FRE 2202**

4 cr. hrs. 4 periods (4 lec.)

Continuation of FRE 201. Includes an intensive review of pronunciation, communication, and advanced grammar. Also includes French cultural traditions.

**Prerequisite(s):** FRE 201.

*Information: This course will be conducted primarily in French.*

Offered: Fall, Spring.

### **FRE 296 Independent Study in French**

1-4 cr. hrs. 1-4 periods (1-4 lec.)

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.*

*Information: May be taken two times for a maximum of eight credit hours.*

Offered: Fall, Spring.

## Game Design

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### GAM 101 Game Design I

4 cr. hrs. 4 periods (4 lec.)

Textual analysis of game play. Includes history of games, defining play, use of rules, impact of games on culture, psychological impact of games, and working in the game industry.

Offered: Fall, Spring, Summer.

### GAM 102 Game Design II

4 cr. hrs. 5 periods (3 lec., 2 lab)

Continuation of GAM 101. Includes the role of the game designer, structure of the game, formal and dramatic elements of the game, game play fun, and storyboard development.

**Prerequisite(s):** GAM 101.

Offered: Fall, Spring.

### GAM 120 Introduction to Game Programming

4 cr. hrs. 5 periods (3 lec., 2 lab)

Introduction to game engine programming. Includes Unity 3D game engine, JavaScript language features, input interaction, object-oriented JavaScript and ActionScript features, image maps, particle engine, and artificial intelligence techniques.

**Prerequisites:** DAR 252 and GAM 101 and either MAT 145 (preferred) or MAT 142 or 144 or 151 or higher.

*Corequisite(s)*

Offered: Spring.

### GAM 150 Game Programming I

4 cr. hrs. 5 periods (3 lec., 2 lab)

Basic concepts of game programming using managed DirectX and C#. Includes getting started with Direct 3D, Direct 3D devices, rendering, meshes, and creating a game.

**Prerequisite(s):** CIS142.

Offered: May not be offered this year, check class schedule.

### GAM 151 Game Programming II

3 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of GAM 150. Intermediate concepts of game programming using managed DirectX and C#. Includes graphic concepts. High Level Shader, sound, and user input.

**Prerequisite(s):** GAM 150.

Offered: May not be offered this year, check class schedule.

### GAM 201 Game Design III

4 cr. hrs. 5 periods (3 lec., 2 lab)

Continuation of GAM 102. Includes conceptualizing a game; prototyping; playtesting; functionality, completeness, and balance, controls and interface; design team; and storyboarding.

**Prerequisite(s):** GAM 102, 120.

Offered: Spring.

### GAM 214 Digital Arts Business and Portfolio

2 cr. hrs. 3 periods (1 lec., 2 lab)

Business techniques for the digital arts industry. Includes designer/client relationship, fee structures for designer services, documenting time, portfolio development, and advertising and promotion.

**Prerequisite(s):** DAR 103.

*Information:* Same as DAR 214.

Offered: Fall.

## General Technical Writing

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### GTW 101 Writing for Trades and Technical Occupations

3 cr. hrs. 3 periods (3 lec.)

Applied technical reading and writing components necessary for trade and industrial occupations. Includes review of grammar; spelling and sentence building basics; reading trade and technical texts critically; and practical application of writing including writing for clarity, accuracy and professionalism as they relate to job functions, occupational requirements and effective communications across trades.

**Prerequisite(s):** WRT 070 or 075 with a C or better, or required score on the writing assessment test for WRT 100.

Offered: May not be offered this year, check class schedule.

### GTW 101A Writing for Trades and Technical Occupations: Module A

1 cr. hrs. 1 periods (1 lec.)

Module A constitutes approximately the first one-third of GTW 101.

**Prerequisite(s):** WRT 070 or 075 with a C or better, or required score on the writing assessment test for WRT 100.

*Information:* GTW 101A, 101B, and 101C together constitute GTW 101. A student may concurrently enroll in all three modules, but modules must be completed sequentially during the semester.

Offered: Fall, Spring.

### GTW 101B Writing for Trades and Technical Occupations: Module B

1 cr. hrs. 1 periods (1 lec.)

Module B constitutes approximately the second one-third of GTW 101.

**Prerequisite(s):** GTW 101A with a grade of C or better, or concurrent enrollment in GTW 101A and/or 101C.

*Information:* GTW 101A, 101B, and 101C together constitute GTW 101. A student may concurrently enroll in all three modules, but modules must be completed sequentially during the semester.

Offered: Fall, Spring.

### GTW 101C Writing for Trades and Technical Occupations: Module C

1 cr. hrs. 1 periods (1 lec.)

Module C constitutes approximately the third one-third of GTW 101.

**Prerequisite(s):** GTW 101B with a grade of C or better, or concurrent enrollment in GTW 101A and/or 101B.

*Information:* GTW 101A, 101B, and 101C together constitute GTW 101. A student may concurrently enroll in all three modules, but modules must be completed sequentially during the semester.

Offered: Fall, Spring.

## General Technical Mathematics

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### GTM 105 Applied Technical Mathematics

3 cr. hrs. 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 completion of module 15 in MAT 089 or satisfactory score on the mathematics assessment test.

Offered: Fall, Spring.

### GTM 105V Applied Technical Mathematics for Aviation

3 cr. hrs. 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 aviation practical applications.

**Prerequisite(s):** MAT 086 or completion of Module 15 in MAT 089 or satisfactory score on the mathematics assessment test.

Offered: Spring.

## Geography

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### GEO 101 Physical Geography: Weather and Climate

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to the physical elements. Includes earth-sun relationships, atmospheric processes, global heat balance, global pressure and temperature patterns, annual weather and climate patterns, weather and air pollution, urban influences on weather and climate, and climatic change. Also includes weather and people, wave cyclones of middle latitudes, weather maps and weather prediction, basic ecological principles, and energy.

Offered: Fall, Spring, Summer.

### GEO 102 Physical Geography: Land Forms and Oceans

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to the surface of the earth and the forces of nature that shape it. Includes continental drift and plate tectonics, geomorphic processes, the hydrologic cycle, pollution esthetics of landforms, recreation and other utilization, and map reading and interpretation.

Offered: Fall, Spring, Summer.

### GEO 103 Cultural Geography

3 cr. hrs. 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. Also includes rural traditions and livelihoods, urban geography, economic changes and industrialization, as well as political and medical geography.

Offered: Fall, Spring, Summer.

### GEO 104 World Regional Geography

3 cr. hrs. 3 periods (3 lec.)

Geographic concepts and information organized by conventional regions and nations. Includes geographic perspectives, physical environment, regions and cultures, realms and population, and the regional framework.

Offered: Fall, Spring.

### GEO 250 Introduction to Medical Geography

3 cr. hrs. 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: Spring.

### GEO 265 Mapping Concepts

1 cr. hrs. 1 periods (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/GIS 265.

Offered: Fall.

### GEO 267 Introduction to Geographic Information Systems

3 cr. hrs. 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/GIS 265 or concurrent enrollment.

Information: Basic computer skills are required before enrolling in this course.

Information: Same as ANT/ARC/GIS 267.

Offered: Fall.

### GEO 284 Computer Cartography and CAD

3 cr. hrs. 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/GEO/GIS 265 or concurrent enrollment and CSA 101.

Information: Same as ANT/ARC/GIS 284.

Offered: May not be offered this year, check class schedule.

**GEO 296 Independent Studies in Geography**

.5-6 cr. hrs. 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.

## Geology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**GLG 101IN Physical Geology SUN# GLG 1101**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to the physical aspects of the Earth's crust. Includes scientific measurements, maps, and the scientific method; hands-on identification and assessment of rocks and minerals; and introduction to geology, earth composition, surface processes, subsurface processes, investigative tools, geologic structures, geologic resources, and earth history. Also includes a field trip to observe and interpret geologic processes in a natural setting.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring.

**GLG 102IN Historical Geology**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to the physical, chemical, and biological history of the Earth, including hands-on identification and classification of major fossil groups according to their phyla, ages, and ecosystems. Includes scientific measurements, maps, scientific method, history of historical geology (Uniformitarianism, Catastrophism); identification and interpretation of rocks and sedimentary textures, environments, and structures; geologic time, the evolution of life, planetary evolution, plate tectonics, evolution of the Earth's surface (including the physical environments, resources, and life of the Precambrian, Paleozoic, Mesozoic, and Cenozoic); and human evolution and human impacts. Also includes a field trip to observe rocks and structures and interpret geologic history and fossils in a natural outdoor setting.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring.

**GLG 110IN Geological Disasters and Environmental Geology**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Survey of geologic processes with respect to the interactions between humans and the Earth. Includes identifying geologic hazards, understanding the challenges of predicting and preventing natural disasters, and mitigating and preventing pollution; the relationship of natural resources to population distribution, resource usage and impacts, and waste management and pollution prevention; and the hydrologic cycle, plate tectonics, volcanoes, earthquakes, and catastrophic events, such as floods, fires, landslides, earthquakes, and volcanic action. Also includes water quality, resource availability, toxic and radioactive waste disposal problems and proposed solutions, global climate change, sea level rise, greenhouse gases, and extreme weather. Also includes a field trip to investigate local geologic hazards.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring.

**GLG 140IN Introduction to Oceanography**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to the study of the oceans. Includes scientific measurements, lab techniques, and the scientific method. Also includes 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: Spring.

**GLG 240IN Geology of Selected Regions**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Geologic survey of a specific region. Includes the stratigraphy, structure, historical geology, an emphasis on contemporary geologic processes, and aspects of resource usage by human occupants. Also includes classroom research, laboratory activities, and field work which may involve multi-day field excursions.

**Prerequisite(s):** GLG 101IN.

**Recommendation:** Completion of GLG 102 or 102IN before enrolling in this course.

*Information:* Students will be required to participate in some hiking activities and should be in reasonably good physical condition if considering enrolling in this course.

*Information:* GLG 101 no longer offered but will meet prerequisite.

**Offered:** May not be offered this year, check class schedule.

**GLG 244IN Geological Field Excursions**

1-3 cr. hrs. .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. May also include human-related developments associated with the geological environment.

*Information:* IN is the integrated version of the course with and lab taught simultaneously. Consent of the instructor is required before enrolling in this course. May involve overnight camping and strenuous hikes. May be taken four times for a maximum of twelve credits.

*Information:* 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 cr. hrs. 5 periods (2 lec., 3 lab)

Overview of the stratigraphy, structural geology, and geologic history of Arizona and adjacent areas.

**Prerequisite(s):** GLG 101IN and 102IN.

*Information:* Students will be required to participate in some hiking activities and should be in reasonably good physical condition if considering enrolling in this course.

*Information:* GLG 101 and 102 no longer offered but will meet prerequisite.

**Offered:** May not be offered this year, check class schedule.

**GLG 296 Independent Studies in Geology**

.5-3 cr. hrs. 1.5-9 periods (1.5-9 lab)

Independent studies, projects, and/or laboratory exercises in geology. Content to be determined by conference between student and instructor.

*Information:* Consent of instructor is required before enrolling in this course.

*Information:* May be taken three times for a maximum of nine credit hours.

**Offered:** May not be offered this year, check class schedule.

## Geospatial Information Studies

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**GIS 181 Global Positioning Systems Basics**

1 cr. hrs. 1 periods (1 lec.)

Introduction to the use of Global Positioning Systems (GPS) receivers in a field setting for non-technical applications. Includes GPS vocabulary, operation, field data collection and data transfer. Also includes using equipment, resources and facilities of the Archaeology Centre.

*Information:* Same as ANT/ARC 181.

**Offered:** Fall.

**GIS 265 Mapping Concepts**

1 cr. hrs. 1 periods (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/GEO 265.

**Offered:** Fall.

**GIS 267 Introduction to Geographic Information Systems**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to the technology of geographic information systems (GIS). Includes the evolution of the technology, applications, benefits and costs, characteristics of geographic data, data types, database concepts, and operations and functionality. Also includes hardware, software, implementation, legal issues, and the future of geographic information systems.

**Prerequisite(s):** ANT/ARC/GEO/GIS 265 or concurrent enrollment.

*Information:* Prerequisite may be waived with consent of instructor. Basic computer skills are required before enrolling in this course. Same as ANT/ARC/GEO 267.

Offered: Fall.

**GIS 281 Global Positioning Systems**

1 cr. hrs. 3 periods (3 lab)

Introduction to the technical use of Global Positioning Systems (GPS) receivers in a field setting. Includes review of GPS vocabulary and concepts, comprehensive initialization of handheld GPS receivers, data collection with handheld GPS, the use of mapping software with data from handheld GPS, concepts of differential GPS, operation of and field data collection with static and RTK precision GPS, use of software packages for differential correction and map production. Also includes using equipment, resources and facilities of the Archaeology Centre.

**Prerequisite(s):** ANT/ARC/GIS 181

*Information:* Prerequisite(s) may be waived with equivalent experience or consent of instructor. Same as ANT/ARC 281

Offered: Spring.

**GIS 284 Computer Cartography and CAD**

3 cr. hrs. 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/GEO/GIS 265 or concurrent enrollment, and CSA 101.

*Information:* Same as ANT/ARC/GEO 284.

Offered: May not be offered this year, check class schedule.

**GIS 286 Electronic and Digital Field Mapping**

4 cr. hrs. 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):** ANT/ARC 265 and ANT/ARC/GIS 281.

**Recommendation:** Consult instructor for alternative prerequisite(s).

*Information:* Same as ANT/ARC 286.

Offered: Spring.

## German

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**GER 101 Elementary German I SUN# GER 1101**

4 cr. hrs. 4 periods (4 lec.)

Introduction to the German language in developing proficiency in listening to, speaking, reading, and writing. Includes nouns and pronouns pronunciation, communication, basic grammar, and introduction to German culture.

Offered: Fall, Spring.

**GER 102 Elementary German II SUN# GER 1102**

4 cr. hrs. 4 periods (4 lec.)

Continuation of GER 101. Includes increased proficiency in listening to, speaking, reading, and writing the German language. Also includes pronunciation, communication, intermediate grammar, and German cultural traditions.

**Prerequisite(s):** GER 101.

*Information:* One year of high school German may fulfill prerequisite.

Offered: Fall, Spring.

**GER 201 Intermediate German I SUN# GER 2201**

4 cr. hrs. 4 periods (4 lec.)

Continuation of GER 102. Includes an intensive review of grammar, pronunciation, communication, advanced grammar, readings of selected authors, and German culture.

**Prerequisite(s):** GER 102.

*Information:* Two years of high school German may fulfill prerequisite.

Offered: Fall, Spring.

**GER 202 Intermediate German II SUN# GER 2202**

4 cr. hrs. 4 periods (4 lec.)

Continuation of GER 201. Includes pronunciation, communication, advanced grammar, and German culture.

**Prerequisite(s):** GER 201.

Offered: Fall, Spring.

**GER 296 Independent Study in German**

1-4 cr. hrs. 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.

*Information:* May be taken two times for a maximum of eight credit hours.

Offered: Fall, Spring.

## Global Studies

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**GLS 109 Introduction to Global Studies**

3 cr. hrs. 3 periods (3 lec.)

Survey of modern globalization. Includes the study of dimensions of globalization, global organizations, global politics, cultural globalization, the global economy, global environmental independence, and global social movements and counter movements. Also includes global interactions and their current effects on the restructuring of cultural, political, and economic institutions worldwide.

*Information:* Same as ANT 109 and SOC 109.

Offered: May not be offered this year, check class schedule.

## Health Care

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**HCA 102 Drug Calculations**

1 cr. hrs. 1 periods (1 lec.)

Computation of medication dosage. Includes basic mathematics review, calculation of medications, interpretation of labels, alternate methods of administration, methods of medication calculations, and calculations related to route of administration and in specialty areas.

**Corequisite(s):** HCA 155, NRS 104

Offered: Fall, Spring.

**HCA 103 Orientation to Pharmacology**

3 cr. hrs. 3 periods (3 lec.)

An overview of pharmacology for allied health professionals. Includes pharmacological principles and the chemical, generic, and trade names for drugs. Also includes drug measurement and calculations, prescription preparation, administration, and Federal and Arizona regulations.

Offered: May not be offered this year, check class schedule.



**HCA 119 Orientation to Human Anatomy and Physiology**

2 cr. hrs. 2 periods (2 lec.)

Orientation to basic anatomy and physiology appropriate for the health care setting. Includes the application of medical terminology for the health care environment.

Offered: May not be offered this year, check class schedule.

**HCA 152 Advanced Cardiac Life Support**

2 cr. hrs. 2 periods (2 lec.)

Evaluation and management of patients in pre-arrest and cardiac arrest as required by guidelines of the American Heart Association. Includes advanced cardiac life support (ACLS) overview, review of prerequisite material, case overview, discussion, and demonstration of appropriate treatment for various cardiac emergencies, and practical examination of knowledge and skills.

*Information: Provides the didactic portion and the competency skill stations required by the American Heart Associate (AHA) course in Advanced Cardiac Life Support (ACLS). Healthcare provider basic life support (BLS) card is required at the beginning of the class. This course is designed for students enrolled in the PCC Respiratory Care program. Students must have completed the first year of the Respiratory Care program before enrolling in this course.*

Offered: Summer.

**HCA 154 Introduction to Health Care Delivery**

3 cr. hrs. 3 periods (3 lec.)

Overview of the health care field. Includes health care delivery systems, medical terminology, ethics and professionalism, patient rights and responsibilities; communication; basic patient assessment; and workplace and personal safety.

Offered: May not be offered this year, check class schedule.

**HCA 155 Introduction to Pharmacology**

3 cr. hrs. 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, NRS 104LC, NRS 104LS, WRT 101

Offered: Fall, Spring.

## Health Continuing Education

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**HCE 200 Surgical Technologist Refresher**

3 cr. hrs. 3 periods (3 lec.)

Preparation for the national Certified Surgical Technologist Exam. Includes anatomy and physiology, microbiology and wound healing, pharmacology, computer skills, electricity, robotics, surgical procedures, and perioperative patient care.

*Information: Prior to enrolling in this course, students must be current or previously certified surgical technologists or uncertified graduates of a surgical technology program accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) or Accrediting Bureau of Health Education Schools (ABHES).*

Offered: May not be offered this year, check class schedule.

**HCE 249 Medication Delivery Regulations in Nursing**

1 cr. hrs. 1 periods (1 lec.)

Overview of the Arizona state regulations impacting medication delivery in nursing. Includes interaction and roles of health care personnel, management and delegation, and advanced scope of practice. Also includes patient rights, and legal and ethical considerations.

*Information: Corequisite for HCE 250 or HCE 253.*

Offered: May not be offered this year, check class schedule.

**HCE 253 Intravenous Medication Therapy for the Registered Nurse**

3 cr. hrs. 3 periods (3 lec.)

Techniques for the registered nurse to start, maintain, and discontinue intravenous (IV) therapy, such as peripheral venipuncture and to administer IV therapy. 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. Also includes anatomy and physiology related to IV Therapy.

*Information: Registered Nurse or consent of instructor is required before enrolling in this course.*

*Offered: May not be offered this year, check class schedule.*

## Health Education

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**HED 136 Introduction to Health Sciences**

3 cr. hrs. 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: Spring.*

**HED 140 First Aid and Cardiopulmonary Resuscitation**

1 cr. hrs. 1 periods (1 lec.)

Theory and practice for treatment of infants, children, and adults. Includes standard first aid and cardiopulmonary resuscitation (CPR).

*Offered: May not be offered this year, check class schedule.*

## Health Information Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**HIT 100 Introduction to Health Information Management**

3 cr. hrs. 3 periods (3 lec.)

An overview of health care delivery systems and mechanisms in the U.S. Includes the medical model of healthcare and delivery in the U.S, public policy, professional roles, legal and regulatory issues, ancillary services, health record and payment systems including the Electronic Health Record (EHR) and computer systems. Also includes health reform initiatives in the U.S.

*Offered: Fall, Spring.*

**HIT 101 Introduction to ICD Coding**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to principles and application of the International Classification of Diseases (ICD) coding system and the Healthcare Common Procedure Coding System (HCPCS). Includes overview of coding, introduction to ICD 9th Revision Clinical Modifications (9-CM), and ICD 10th Revision Clinical Modifications/Procedural Coding System (10-CM/PCS). Includes coding conventions, coding guidelines, hospital inpatient, outpatient and physician office coding and overview of HCPCS.

**Recommendation:** *HIT 105.*

*Offered: Fall, Spring.*

**HIT 102 CPT Coding**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to principles and application of Current Procedural Terminology (CPT) Coding System. Includes overview of CPT and CPT coding. Also includes the following CPT sections: Anesthesia, Evaluation and Management, Medicine, Radiology, Surgery, and Pathology and Laboratory.

**Recommendation:** *Completion of HIT 105 is recommended before enrolling in this course.*

*Offered: Fall, Spring.*

**HIT 105 Medical Terminology**

4 cr. hrs. 4 periods (4 lec.)

Terminology used in the medical field. Includes word parts and forms, terms pertaining to the body as a whole, anatomy and structural organization of the body. Also includes terminology of body systems, organs and function including disease processes and symptoms, laboratory tests, clinical procedures and use of medical dictionaries and other resource materials for research and practice.

Offered: Spring.

**HIT 112 Health Insurance and Medical Billing**

3 cr. hrs. 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.

**Recommendation:** Completion of HIT 100 and 105 are recommended before enrolling in the course.

Offered: Spring.

**HIT 125 Pathophysiology and Pharmacology for HIT**

4 cr. hrs. 4 periods (4 lec.)

Principals of pharmacology and pathophysiology. Includes disease processes according to body system, causes, diagnosis and treatment with emphasis on drug actions and classifications. Includes pharmacotherapy and laboratory findings; basic concepts in pharmacology, pharmacokinetics, dosage calculations, and pharmacology as applied to disease and conditions distinct to each body system.

Offered: Spring.

**HIT 145 Introduction to Health Data Management**

2 cr. hrs. 2 periods (2 lec.)

Introduction to health data management. Includes history and evolution of the health record from paper-based charts to interactive electronic health record systems. Includes functions, content and structure of the health record, electronic collection, storage and analysis, healthcare data sets and applications in health information technology.

Offered: Spring.

**HIT 150 Health Management Information Systems**

4 cr. hrs. 4 periods (4 lec.)

Concepts, theory, and application of Health Management Information Systems (HMIS) from a managerial perspective. Includes evolution of HMIS; roles and responsibilities of managers through adoption and implementation including vision, strategy and execution; Online Health record accessibility, alternative methods of health information retrieval and future directions; HMIS technology and applications including customer relations and resource planning, hardware, software, and interface concepts; community health information networks; patient centered systems; HMIS integration and interoperability; HMIS planning and information requirements; system development including system analysis and developmental methodologies; data stewardship; systems implementation and management; HMIS standards adoption and managing innovation diffusion in healthcare organizations.

Offered: May not be offered this year, check class schedule.

**HIT 165 Medical Office Procedures**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Services and procedures used in a medical office. Includes qualities of the office worker, healthcare industry, communications and human relations, telephone techniques, financial reports, word processing, administrative support and medical billing, filing, mail processing, content of medical health record and documentation, insurance and claims, and employment in a medical office/facility and the interview.

**Recommendation:** HIT 105.

Offered: Fall, Spring.

**HIT 175 Health Information Statistics and Research**

4 cr. hrs. 4 periods (4 lec.)

Principles of health information statistics and research. Includes a statistical approach to healthcare, sources of data collection, data sources and databases. Also includes health care research processes and strategies, project development, data collection, design and analysis, report structure and presentation.

Offered: Spring.

**HIT 201 Advanced ICD Coding**

3 cr. hrs. 4 periods (2 lec., 2 lab)

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 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, musculoskeletal, respiratory, cardiovascular, digestive, urinary, female and male reproductive, endocrine and nervous systems. Also includes codes 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:** HIT 102.

Offered: Fall, Spring.

**HIT 202 Hospital Procedural Coding**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Application and demonstration of coding skills in preparation for basic coding exams offered through the American Association of Professional Coders (AAPC) and the American Health Information Management Association (AHIMA). Also includes applied case studies.

**Prerequisite(s):** HIT 101 and HIT 102.

Offered: Fall, Spring.

**HIT 210 Medical Quality Assurance and Supervision**

3 cr. hrs. 3 periods (3 lec.)

Principles and practices of healthcare management and personnel supervision. Includes health information management, required management skills, management planning, policies and procedures, human resources supervisory role, job analysis, interviews, evaluations, behavior, and motivation, meetings, orientations, and training, HIPPA regulations, productivity measurement and performance standards, organization models, technologies in health care, accreditation and licensure, ergonomics, and planning for a professional career in health information management.

**Prerequisite(s):** HIT 100, 110, 111.

Offered: Fall.

**HIT 211 Medicolegal Aspects in Health Information Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction to regulatory requirements in health care and application of general principles of law in health information management and legal proceedings. Includes American legal system, court systems and legal procedures, principles of liability, patient record requirements, access to health information, patient rights and confidentiality, judicial process of health information, specialized patient records, risk management and quality management, HIV information, computerized patient records, health care fraud and abuse, and ethics.

**Prerequisite(s):** HIT 100, 105.

Offered: Spring.

**HIT 225 Health Management Information Systems Projects**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Application of health management information systems from a managerial perspective. Includes use of real world software applications for development, strategy and execution of an information system. Includes database management, telecommunications and the Internet, vendor selection, online health record accessibility, data security and design of an organizational work plan.

Offered: Spring.

**HIT 290 Health Information Technology Internship**

3 cr. hrs. 11 periods (1 lec., 10 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):** HIT 105 and permission of the instructor.*Information: Designed for students in their final semester of course work in the Health Information Technology option.*

Offered: Fall, Spring.

## History

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### HIS 101 Introduction to Western Civilization I

3 cr. hrs. 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 101HC Introduction to Western Civilization I: Honors

3 cr. hrs. 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. Also includes Honors content.

**Prerequisite(s):** Must qualify for Honors program.

*Information: Faculty or Advisor approval is required before enrolling in this course. Honors Content: Intensive research using the highest standards and best practices for the discipline; a significant number/variety of readings of both primary and secondary sources; a publishable quality peer reviewed paper or project in a format appropriate for the discipline; and presentation of research, in class or to a wider audience.*

Offered: Spring.

### HIS 102 Introduction to Western Civilization II

3 cr. hrs. 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 102HC Introduction to Western Civilization II: Honors

3 cr. hrs. 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. Also includes Honors content.

**Prerequisite(s):** Must qualify for Honors program.

*Information: Faculty or Advisory approval is required before enrolling in this course. Honors Content: Intensive research using the highest standards and best practices for the discipline; a significant number/variety of readings of both primary and secondary sources; a publishable quality peer reviewed paper or project in a format appropriate for the discipline; and presentation of research, in class or to a wider audience.*

Offered: Fall, Spring.

### HIS 105 Introduction to Chicano Studies

3 cr. hrs. 3 periods (3 lec.)

Chicano(a) life in historical context since 1848. Includes defining Chicano(a) ideologies and realities from an interdisciplinary perspective. Also includes Chicano(a) history and culture within the world systems of Native Americans, New Spain, Mexico and the United States.

Offered: Fall, Spring.

### HIS 113 Chinese Civilization

3 cr. hrs. 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. - A.D. 221), 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 cr. hrs. 3 periods (3 lec.)

Introductory survey of the civilization of Japan from its origins to the present. Includes the Formative Period (prehistory-A.D. 250); influence of Chinese civilization on Japan (300-794); Heian Period - emergence of uniquely Japanese cultural forms (794-1185); Kamakura Shogunate - establishment of military government (1185-1336); Ashikaga Shogunate - civil war and the reunification of Japan (1336-1573); Tokugawa Period (1600-1867); Meiji Period (1868-1912); Taisho Period (1912-1925); Showa Period (1926-1989); and Heisei Period (1990-present).

Offered: Fall, Spring.

**HIS 122 Tohono O'odham History and Culture**

3 cr. hrs. 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: Spring.

**HIS 124 History and Culture of the Yaqui People**

3 cr. hrs. 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 the deportation and enslavement of the Yaqui from the 17th to the 20th centuries by the Spanish and American governments and the deportation of the Yaqui by the United States in the 1880's. Also examines acts of genocide and subjugation against the Yaqui in revolutionary Mexico, 20th century relocation and adaptation strategies of the Yaqui in the United States and the Yaqui culture of the 21st century.

Offered: May not be offered this year, check class schedule.

**HIS 127 History and Culture of the Mexican-American in the Southwest**

3 cr. hrs. 3 periods (3 lec.)

Historical survey of Mexicano(a)/Chicano(a) people from their indigenous origins in Meso-America and the Gran Chichimeca to the present in the United States. Includes historical writings, movements north under Spain and Mexico, repression and resistance. Also covers the political, economic, religious and social movements of the 19th, 20th and early 21st centuries.

Information: Same as ANT 127.

Offered: Fall, Spring.

**HIS 128 History of the Dine' (Navajo)**

3 cr. hrs. 3 periods (3 lec.)

Examination of the Dine' (Navajo) culture, historical development, and modern issues. Includes Spanish, Mexican, and U.S. relations with the Dine', also includes religion and worldview of the Dine' people, their role in World War II, boarding schools, and other contemporary issues.

Offered: May not be offered this year, check class schedule.

**HIS 141 History of the United States I**

3 cr. hrs. 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 141HC History of the United States I: Honors**

3 cr. hrs. 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. Includes the social, intellectual, and political aspects of early American life. Also includes Honors content.

**Prerequisite(s):** Must qualify for Honors program.

Information: Faculty or Advisor approval is required before enrolling in this course. Honors Content: Intensive research using the highest standards and best practices for the discipline, and a significant number/variety of readings of both primary and secondary sources; a publishable quality peer reviewed paper or project in a format appropriate for the discipline: presentation of research, in class or to a wider audience.

Offered: May not be offered this year, check class schedule.

**HIS 142 History of the United States II**

3 cr. hrs. 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 142HC History of the United States II: Honors**

3 cr. hrs. 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. Also includes Honors content.

**Prerequisite(s):** Must qualify for Honors program.

*Information:* Faculty or Advisor approval is required before enrolling in this course. *Honors Content:* Intensive research using the highest standards and best practices for the discipline, and a significant number/variety of readings of both primary and secondary sources; a publishable quality peer reviewed paper or project in a format appropriate for the discipline: presentation of research, in class or to a wider audience.

Offered: May not be offered this year, check class schedule.

**HIS 147 History of Arizona**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

African-American history from the colonial period to the present. Includes identity, double consciousness, culture and arts, and political protest.

Offered: May not be offered this year, check class schedule.

**HIS 160 Latin America Before Independence**

3 cr. hrs. 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 level skills, and writing quality will be graded.

Offered: Fall, Spring.

**HIS 161 Modern Latin America**

3 cr. hrs. 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 skills, and writing quality will be graded.

Offered: Spring.

**HIS 180 Women in Western History**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**HIS 232 The Politics and History of Immigration**

3 cr. hrs. 3 periods (3 lec.)

Examines the politics of immigration in the United States and the phenomenon of emigration in a global context. Includes analyses of the history of immigration as a result of the country's political economy and its evolution and the role of immigration in the socio-political and economic development of the nation.

*Information: Same as POS 232.*

Offered: Fall.

**HIS 240 Medieval History**

3 cr. hrs. 3 periods (3 lec.)

A survey of the medieval period of Western Civilization from A.D. 410-1453. Includes an examination of the major political, military, social, economic, religious, artistic, and intellectual events of the Middle Ages.

Offered: Fall.

**HIS 244 Western America**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**HIS 245 Abraham Lincoln and the American Civil War**

3 cr. hrs. 3 periods (3 lec.)

Overview of the American Civil War. Includes a survey of conditions that led to the American Civil War; an examination of the major political, military, social and economic events of the Civil War; and a treatment of the impact of the Civil War on the United States and the impact of the Civil War on the United States and the Confederate States of America. Also includes an emphasis on the political career of Abraham Lincoln and the destruction of slavery.

Offered: Fall.

**HIS 254 History of Women in the United States: The 20th Century**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**HIS 274 The Holocaust**

3 cr. hrs. 3 periods (3 lec.)

Examines the causes, events and legacies of the Nazi assault on humanity. Includes the history of hate against the Jews in Europe, historical antecedents and preconditions of the Holocaust, the Third Reich and the creation of a racial state, the "Final Solution" and the aftermath.

Offered: Fall, Spring, Summer.

**HIS 276 Tudor and Stuart England**

3 cr. hrs. 3 periods (3 lec.)

Examination of Tudor England politics, economics, culture, and military. Includes the Battle of Bosworth Field, the reigns of Henry VIII and Edward VI, through the Anglican Reformation to Mary the first Queen Regnant of England to the Golden Age of Elizabeth I that fueled New World exploration and high sea adventures. Also includes James I who unified England and Scotland, Charles I, the English Civil War, Charles II, and James II, who fell in the Glorious Revolution.

Offered: May not be offered this year, check class schedule.

**HIS 277 History of the Middle East: From the Rise of Islam to 1453**

3 cr. hrs. 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, Mamlue Egypt, and the Ottoman Turks.

Offered: May not be offered this year, check class schedule.

**HIS 278 History of the Middle East: From 1453 to the Present Age**

3 cr. hrs. 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: May not be offered this year, check class schedule.



**HIS 280 History of the World Wars**

3 cr. hrs. 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 Cold War: Soviet Confrontations and Vietnam**

3 cr. hrs. 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 and new world order.

*Information: This is a continuation course to HIS 280 History of the World Wars; however, HIS 280 is not a prerequisite. This course will require a college level reading ability.*

Offered: May not be offered this year, check class schedule.

**HIS 284 Modern Israel and Arab/Israeli Relations**

3 cr. hrs. 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 US'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: May not be offered this year, check class schedule.

**HIS 296 Independent Study in History**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

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.*

*Information: May be taken two times for a maximum of three credit hours.*

Offered: May not be offered this year, check class schedule.

## Honors Program

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**HON 101 Honors Colloquium**

3 cr. hrs. 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: Students must be eligible for Honors courses based on placement tests, and/or have a 3.5 GPA, and/or be a Pima Scholar before enrolling in this course.*

Offered: Fall, Spring.

**HON 210 College Honors Advisory Council**

1 cr. hrs. 1 periods (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 cr. hrs. 1-3 periods (1-3 lec.)

Field excursions to provide direct experience of foreign or domestic 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.

*Information:* May be taken four times for a maximum of twelve credits hours.

Offered: May not be offered this year, check class schedule.

**HON 296 Honors Independent Study Project**

1-3 cr. hrs. 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 277*

**HRM 100 Introduction to the Hospitality Industry**

3 cr. hrs. 3 periods (3 lec.)

Overview of the hospitality industry, including the food service business, restaurants and hotels, and the meeting and conference industry. Also includes hospitality industry management and leadership; human resources; marketing and promotion; franchising; and ethics in hospitality management.

Offered: Fall, Spring.

**HRM 101 Front Office Procedures**

3 cr. hrs. 3 periods (3 lec.)

Principles and procedures for front office operations in hotels and resorts. Includes classification of hotels, organizational structure, front office operations planning and evaluation, and human resources management. Also includes reservations, registration, front office accounting, check out and settlement, night audit, and revenue management.

Offered: Fall, Spring.

**HRM 104 Hotel Food and Beverage Management**

3 cr. hrs. 3 periods (3 lec.)

Hotel food and beverage operations and management. Includes management structure and functions, personnel management, cost control/quality assurance, tools and equipment, facilities, and purchasing and storage. Also includes volume food management; beverage management and service; food products and preparation techniques; menus and recipes; sanitation; and liability issues.

Offered: Fall.

**HRM 110 Food Service Systems Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction the various components of systematic food service management. Includes investigation of management principles, various management control methods, and critical operational functions.

Offered: Fall.

**HRM 111 Commercial Food**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to all facets of hot food preparation in a commercial kitchen. Includes the application of proper cooking skills and techniques. Also includes the use and/or preparation of a variety of food items, such as sauces, thickening agents, soups, vegetables, starches, meats, and pastries. Prerequisite: HRM110

*Information:* This course requires 10 hours of commercial kitchen demonstration.

Offered: Spring.

**HRM 120 Meetings and Convention Management**

3 cr. hrs. 3 periods (3 lec.)

Basic principles for planning and operating meetings, conventions, and trade shows. Includes types of events and their economic impact, meetings as a social phenomenon, and the role of the meeting planner. Also includes practical tools for preliminary planning and needs analysis, program design and budgeting, site selection, and on-site management.

Offered: Fall.

**HRM 140 Introduction to Bar and Beverage Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the fundamental areas of beverage operations. Includes planning of the bar, bar staffing and training, legal regulations, standardized recipes, drink costing and pricing, and beverage production methods and mixology. Also includes product identification; purchasing, receiving, storing and issuing beverages; service of spirits, wine and beer products; marketing and menu development; and cost controls of a beverage operation.

**Prerequisite(s):** HRM 110.

**Recommendation:** Students should be at least 21 years of age.

Offered: Summer.

**HRM 150 Executive Housekeeping**

3 cr. hrs. 3 periods (3 lec.)

Overview of the executive housekeeping function. Includes housekeeping techniques, cleaning methods, and laundry operations. Also includes operations planning, scheduling and staffing, and procedures and guidelines for security and safety.

Offered: Fall, Spring.

**HRM 199 Introductory Co-op: Hotel and Restaurant Management**

1 cr. hrs. 1 periods (1 lec.)

Introduction to cooperative education for first-year students. Includes instruction that supports success in securing and retaining a training job related to hotel and restaurant management. Also includes communication skills; time, energy, and stress management; career information and its uses; the job market; principles, theories, and practices in the career field; and problems in the work environment.

**Corequisite(s):** HRM 199WK

*Information: May be taken two times for a maximum of two credit hours.*

Offered: Fall, Spring.

**HRM 199WK Co-op Work: Hotel and Restaurant Management**

1-8 cr. hrs. 5-40 periods (5-40 lab)

A supervised cooperative work program for students in hotel and restaurant management. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

**Corequisite(s):** HRM 199

*Information: May be taken two times for a maximum of sixteen credit hours.*

Offered: Fall, Spring.

**HRM 211 Introduction to Hospitality Sales and Marketing**

3 cr. hrs. 3 periods (3 lec.)

Basic principles and practical skills for developing marketing strategies and the implementation of marketing plans for hospitality enterprises. Includes the vision of marketing as a management philosophy to guide the design and delivery of guest services and the examination of the dynamic relationship between hospitality marketing and daily operations. Also includes an emphasis on sales as an aspect of meeting the needs of the customer, personal selling of the right product in the right place at the right time as an integral part of hospitality operations.

**Prerequisite(s):** HRM 100.

Offered: Spring.

**HRM 235 Hospitality Law**

3 cr. hrs. 3 periods (3 lec.)

Examination of legal aspects of hospitality management. Includes basic legal principles governing hospitality operations; the hotel-guest relationship; the hotel's duties to guests and others; laws governing restaurants, foodservice, and bars; and laws relating to hotel employees.

**Prerequisite(s):** HRM 100.

Offered: Spring.

**HRM 245 Hospitality Human Resource Management**

3 cr. hrs. 3 periods (3 lec.)

Examination of personnel issues in hospitality management. Includes recruitment, selection, orientation, training, wages and benefits, legal issues, and employee evaluation. Prerequisite: HRM 100 with a grade of C or better.

Offered: Spring.

**HRM 299 Introduction to Co-op: Hotel and Restaurant Management**

1 cr. hrs. 1 periods (1 lec.)

Advanced cooperative education class that supports success in securing and retaining a training job in hotel and restaurant management. Includes communication skills; time, energy, and stress management; career information and its uses; the job market; principles, theories, and practices in the career field; and problems in the work environment.

**Corequisite(s):** HRM 299WK

*Information: A minimum of 12 credit hours of Hotel and Restaurant Management (HRM) prefix courses or one year of related industry work experience is required before enrolling in this course. May be taken two times for a maximum of two credit hours.*

Offered: Fall, Spring.

**HRM 299WK Co-op Work: Hotel and Restaurant Management**

1-3 cr. hrs. 5-15 periods (5-15 lab)

A supervised cooperative work program for advanced students in hospitality management. Instructor-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

**Corequisite(s):** HRM 299

*Information: A minimum of 12 credit hours of Hotel and Restaurant Management (HRM) prefix courses or one year of related industry work experience is required before enrolling in this course. May be taken for a maximum of three credit hours.*

Offered: Fall, Spring.

## Human Resources Management

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**HRS 101 Introduction to Human Resources Management**

3 cr. hrs. 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 102 Human Resource Law**

3 cr. hrs. 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 issues associated with independent contractors, unions, and lawyers and legal research.

Offered: Fall.

**HRS 103 Benefits and Compensation**

3 cr. hrs. 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.

**HRS 104 Job Requirements, Recruitment, and Personnel Selection**

3 cr. hrs. 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, matching people and jobs, sources of information about job candidates, employment tests, the employment interview, and reaching a selection decision.

Offered: Spring.

**HRS 105 Training and Development**

3 cr. hrs. 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: Spring.

**HRS 106 Labor Relations**

3 cr. hrs. 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: Spring.

## Humanities

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**HUM 131 Mythology**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Reading and research to be determined between the student and the instructor.

Offered: May not be offered this year, check class schedule.

**HUM 251 Western Humanities I**

3 cr. hrs. 3 periods (3 lec.)

Introduction to major cultures from Sumer 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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.

## Interior Design

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**IDE 100 Introduction to Interior Design**

3 cr. hrs. 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.

**IDE 111 Fundamentals of Interior Design**

3 cr. hrs. 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: Spring.

**IDE 122 Visual Communications I**

3 cr. hrs. 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.

**IDE 152 Color and Lighting Theory**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Design concepts for interior design color and lighting. Includes vision, perception, color and lighting theories, color schemes, design concepts, techniques and applications, psychological implications, and designing an interior for color and lighting.

**Prerequisite(s):** IDE 122 or concurrent enrollment.

**Recommendation:** Completion of IDE 111 before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**IDE 155 Space Planning I**

3 cr. hrs. 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 factors and behavior.

**Prerequisite(s):** IDE 122 or concurrent enrollment.

Offered: Spring.

**IDE 158 Computer Aided Drafting Fundamentals for Interior Design**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Two-dimensional computer-aided drafting concepts and techniques for Interior Design. Includes drafting methods and procedures, file management, hard copy production, industry standards, use of scale, blocks and symbol libraries, and portfolio development.

**Prerequisite(s):** IDE 122.

**Recommendation:** IDE 111.

Offered: Spring.

**IDE 160 Fabrics for Interiors**

3 cr. hrs. 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.

**IDE 196 Independent Study in Interior Design**

1-4 cr. hrs. 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: May not be offered this year, check class schedule.

**IDE 212 History of Interior Arch & Furniture: Egyptian Period - 1900**

3 cr. hrs. 3 periods (3 lec.)

Survey of historical architecture, interior treatments, furnishings, and decorative arts. Includes the Classical Period, the Middle Ages, the Renaissance, and Early America.

Offered: Fall.

**IDE 213 History of Interior Architecture & Furniture from 1900-Present**

3 cr. hrs. 3 periods (3 lec.)

Survey of historical architecture, interior treatments, furnishings, and decorative arts. Includes cultural aspects and characteristics of early Twentieth Century, Modernism, Revolution and the Avant-Garde, Contemporary designs, and issues and trends.

Offered: Spring.

**IDE 220 Interior Methods and Materials**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**IDE 222 Visual Communications II**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Professional business principles and practices for the interior designer. Includes business action plan, business 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: May not be offered this year, check class schedule.

**IDE 255 Space Planning II**

3 cr. hrs. 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.

Offered: May not be offered this year, check class schedule.

**IDE 256 Human and Environmental Design**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**IDE 280 Interior Design Portfolio Development**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

## International Business Studies

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**IBS 120 Cultural Environment of International Business**

3 cr. hrs. 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. Also includes political, educational and legal structures, health care values, attitudes toward shopping and conducting business, business structure, ethics and values.

Offered: May not be offered this year, check class schedule.

## Interpreter Training

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**ITP 105 Beginning Fingerspelling and Numbers**

2 cr. hrs. 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, regional states, cities, and calendar designations. Also includes common acronyms, basic lexicalized fingerspelling, and history of fingerspelling.

**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 cr. hrs. 4 periods (4 lec.)

Exploration of the history of American Sign Language (ASL), the deaf community, and the experiences of deaf individuals. Includes norms, values, traditions, and roles of social behaviors. Also includes cross-cultural interactions between deaf and hearing people. Students will also explore the history of the Deaf community, the history of deaf education, issues in language and culture, and Deaf services and programming policies.

**Prerequisite(s):** SLG 202 and WRT 102.

Offered: Fall.

**ITP 203 Linguistics of American Sign Language**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the linguistic structure of American Sign Language (ASL). Includes history, language requirements, linguistic fields, communication systems, assimilation/ symmetry, ASL and English comparisons, time/tense indicators, semantics, morphology, syntax, phonology, modulation/inflection and classifiers/SASSes. Also includes conjunctions, reality principle, conversational regulators, relative clauses, 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 cr. hrs. 2 periods (2 lec.)

Advanced receptive and expressive fingerspelling and number skills. Includes lexicalized fingerspelling, related theories/methodologies, numbers, advanced monetary designations, basic and advanced mathematical functions, acronyms for deaf-related organizations and services, common abbreviations, commonly fingerspelled words, major cities, states, and proper nouns.

**Prerequisite(s):** ITP 105 and SLG 201.

*Information: Additional lab hours are required outside of regularly scheduled class.*

Offered: Fall, Spring.

**ITP 210 Introduction to Interpreting**

4 cr. hrs. 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, Repetitive Motion Injury RMI, history of spoken and sign language interpreters, certification and licensing 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**

3 cr. hrs. 3 periods (3 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.*

*Information: Additional hours may be required outside of the regularly scheduled class.*

Offered: Spring.

**ITP 220 Interpreting I**

4 cr. hrs. 4 periods (4 lec.)

Practical experience in consecutive and simultaneous voice to sign interpreting with increasingly complex and diverse materials. Includes applying the process of interpreting, discourse styles and registers, assignment considerations, physical considerations, application of the Code of Professional Conduct, and giving and receiving feedback, and professional issues. Also includes linguistic/syntax, American Sign Language (ASL) comparisons.

**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 cr. hrs. 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, licensure, communication systems, multiple roles, and code of Professional Conduct. 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**

4 cr. hrs. 4 periods (4 lec.)

Designed to improve and increase English vocabulary and conceptual American Sign Language (ASL) correlates for the sign language interpreter. Includes word origins, common word families, contextual vocabulary building, English idioms, and ASL signs having multiple English translations.

**Prerequisite(s):** REA 075 and SLG 202.

Offered: Spring.

**ITP 270 Beginning Sign to Voice**

4 cr. hrs. 4 periods (4 lec.)

Interpreting basic sign language communication into the spoken word. Practical experience in consecutive and simultaneous sign to voice interpreting with increasingly complex and diverse materials. Includes applying the process of interpreting, discourse styles and registers, assignment considerations, physical considerations, and application of the Code of Professional Conduct. Also 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 cr. hrs. 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 cr. hrs. 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 286 Video Relay Interpreting**

4 cr. hrs. 4 periods (4 lec.)

Development of interpreting and transliteration skills and receptive and expressive skill refinement in video relay call situations. Includes FCC regulations, application of Code of Professional Conduct, call management, and specialized protocols. Also includes support systems, situational and language assessments, team interpreting, and equipment usage.

**Prerequisite(s):** ITP 250, 280.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: May not be offered this year, check class schedule.

**ITP 289 Topics in Interpreting**

3 cr. hrs. 3 periods (3 lec.)

Continued development of interpreting and transliterating skills and receptive and expressive skills refinement in consecutive and simultaneous interpreting situations. Topics include specialized settings, specialized vocabulary, specialized protocols, support systems, situational and language assessment, facilitating the communication process, and preparation for national certification exams.

**Prerequisite(s):** ITP 250, 280.

*Information: Additional lab hours may be required outside of regularly scheduled class.*

Offered: Fall.

**ITP 290 Interpreter Training Field Experience**

2 cr. hrs. 6 periods (1 lec., 5 lab)

Supervised interpreting opportunities in community settings. Includes selection criteria, completion of documentation assignments for portfolio, problem solving, site orientation, student performance evaluations, observation of professional interpreters, Code of Professional Conduct in practice, professional job expectations, and current issues.

**Prerequisite(s):** ITP 250.

Offered: Fall.

**ITP 296 Independent Study in Interpreting**

1-3 cr. hrs. 3-9 periods (3-9 lab)

Extensive practice in identified areas of expressive/receptive interpreting/transliterating under supervision of an instructor.

**Prerequisite(s):** ITP 210, ITP 220 or 270.

*Information: Consent of instructor required before enrolling. Course content and performance objectives will be determined by conference between student and instructional faculty.*

Offered: Summer.

## Italian

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**ITA 101 Elementary Italian I SUN# ITA 1101**

4 cr. hrs. 4 periods (4 lec.)

Introduction to Italian. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

Offered: Fall.

**ITA 102 Elementary Italian II SUN# ITA 1102**

4 cr. hrs. 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 SUN# ITA 2201**

4 cr. hrs. 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: May not be offered this year, check class schedule.

**ITA 202 Intermediate Italian II SUN# ITA 2202**

4 cr. hrs. 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: May not be offered this year, check class schedule.

## Japanese

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**JPN 085 Introductory Japanese**

4 cr. hrs. 4 periods (4 lec.)

Elementary Japanese conversation. Includes an overview of the Japanese language, writing and pronunciation, and useful daily expressions. Also includes Japanese culture and communication.

Offered: Fall, Spring.

**JPN 101 Elementary Japanese I SUN# JPN 1101**

5 cr. hrs. 5 periods (5 lec.)

Introduction to the Japanese language. Includes an overview of the Japanese language, speaking and listening, writing and reading, grammar, personal transactions, and the cultural context within which Japanese conversation takes place. Also includes writing and reading of Hiragana, Katakana, and 23 Kanji characters.

Offered: Fall, Spring.

**JPN 102 Elementary Japanese II SUN# JPN 1102**

5 cr. hrs. 5 periods (5 lec.)

Continuation of JPN 101. Includes oral and written forms, grammatical structures, interpersonal transactions, and the cultural component of communication competency.

**Prerequisite(s):** JPN 101.

Offered: Fall, Spring.

**JPN 201 Intermediate Japanese I SUN# JPN 2201**

5 cr. hrs. 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. Also includes reading and writing Hiragana, Katakana, and 250 Kanji characters.

**Prerequisite(s):** JPN 102.

Offered: Fall.

**JPN 202 Intermediate Japanese II SUN# JPN 2202**

5 cr. hrs. 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: Spring.

## Journalism

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**JRN 101 Introduction to Reporting and Media Writing SUN# JRN 2201**

3 cr. hrs. 3 periods (3 lec.)

Introduction 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 cr. hrs. 3 periods (3 lec.)

Survey of theory, function and impact of mass media. Includes analysis of book and magazine publishing, newspapers, recorded music, radio, television, film, the Internet, public relations, advertising, and media uses and effects. Also includes media law, ethics, and global communication.

Offered: Fall, Spring.

**JRN 185 Newspaper Publishing**

3 cr. hrs. 9 periods (9 lab)

Print and online publication of the college's biweekly student newspaper. Includes news judgment, news gathering, news and opinion writing, multimedia production, editing, headline writing, photography, and other publication activities. Also includes legal and ethical considerations.

**Prerequisite(s):** JRN 101.

Offered: Fall, Spring.

**JRN 186 Writing for the Web**

3 cr. hrs. 3 periods (3 lec.)

Introduction to techniques for writing on the World Wide Web. Includes Web technology; adding photos, graphics, video, audio, hypertext and hypermedia; and linear and nonlinear writing forms. Also includes media law and journalistic ethics.

**Prerequisite(s):** JRN 101.

Offered: Fall.

**JRN 235 Writing/Reporting for Broadcast Journalism**

3 cr. hrs. 3 periods (3 lec.)

Introduction to news writing and reporting for television and radio. Includes broadcast news, formats, terminology and readability; shifting from print to broadcast writing; broadcast copy, news gathering and reporting; and reporting assignments and coverage. Also includes writing for radio and television newscasts; short and long packages for radio and television; live shots; breaking news coverage; influence of the Web and new distribution sources; basic video and audio editing; and broadcast law and ethics.

**Prerequisite(s):** JRN 101.

**Recommendation:** Completion of JRN 102 before enrolling in this course or concurrent enrollment.

Offered: Spring.

**JRN 240 Editing, Layout, and Design**

3 cr. hrs. 3 periods (3 lec.)

Principles of news editing, layout, and design. Includes hands-on copy editing, fact-checking, proofreading, electronic page layout, typography, design, headline and caption writing, as well as, legal and professional responsibilities. Also includes grammar, language, and Associated Press style.

**Prerequisite(s):** JRN 101.

Offered: May not be offered this year, check class schedule.

**JRN 260 Magazine and Feature Writing**

3 cr. hrs. 3 periods (3 lec.)

Writing newspaper and magazine feature articles for publication. Includes types of features, generating story ideas, guidelines for research, interviewing and writing; composing query letters, and submitting feature stories for publication.

**Prerequisite(s):** JRN 101.

Offered: Spring.

**JRN 280 Photojournalism**

3 cr. hrs. 3 periods (3 lec.)

Practical applications of photographic skills to communicate news stories and document life. Includes basic camera operations, multimedia, digital imaging, and editing software, as well as, ethical and legal considerations. Also includes analysis of visual images, composition, technical concepts, cropping and sizing, layout of photo essays, video editing, and writing captions.

*Information: Access to a digital camera is required.*

Offered: Fall, Spring.

**JRN 285 Advanced News Publication**

3 cr. hrs. 3 periods (3 lec.)

Advanced work on print and online publication of the College's biweekly student newspaper. Includes advanced reporting, copy editing, photography, multimedia production, page design and newsroom management. Also includes legal and ethical considerations.

**Prerequisite(s):** JRN 185

Offered: Fall, Spring.

**JRN 290 Journalism Internship**

1-5 cr. hrs. 5-25 periods (5-25 lab)

Volunteer internship work experience at an approved site in the journalism field. Includes hands-on work experience, interpersonal communication, learning objectives and progress, and journalism internship assessment.

**Prerequisite(s):** JRN 101.

*Information: Consent of instructor is required before enrolling in this course. May be taken four times for a maximum of twenty credit hours.*

Offered: Fall, Spring.

## Korean

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### KOR 101 Elementary Korean I

4 cr. hrs. 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: May not be offered this year, check class schedule.

### KOR 102 Elementary Korean II

4 cr. hrs. 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: May not be offered this year, check class schedule.

## Landscape Technician

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### LTP 119 Plants for Landscape Design

3 cr. hrs. 3 periods (3 lec.)

Principles and techniques of plant identification and usage. Includes environmental influences, landscape design basic principles, planting and plant care, plant taxonomy, general and specific applications for plants, and plant selection.

Offered: May not be offered this year, check class schedule.

### LTP 129 Landscape Design

3 cr. hrs. 3 periods (3 lec.)

Principles and techniques of landscape design. Includes determination of project requirements, site analysis, measuring, design principles, preliminary design, landscape plan drawing, and development of a practice project and final project.

Offered: May not be offered this year, check class schedule.

### LTP 140 Landscape Sustainability and Water Harvesting

3 cr. hrs. 3 periods (3 lec.)

Principles and strategies for sustainability in landscapes. Includes environmental impacts, techniques in water harvesting, environmental pollution, and the protection and maintenance of natural systems.

Offered: May not be offered this year, check class schedule.

## Latin

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### LAT 101 Elementary Latin I SUN# LAT 1101

4 cr. hrs. 4 periods (4 lec.)

Introduction to the Latin language through reading and composition. Includes all regular verb tenses in active voice; future perfect and pluperfect tenses in passive voice; the irregular verbs sum, possum, eo, volo, nolo, fero; all five noun declensions; all classes of adjective declensions; present infinitives; commands and questions; adverbs; pronouns: personal, demonstrative, reflexive, and relative pronouns; subordinate clauses; expressions of time and place; numerals; participles: present, perfect passive, and future active; and topics in ancient Roman history and culture.

Offered: May not be offered this year, check class schedule.

**LAT 102 Elementary Latin II SUN# LAT 1102**

4 cr. hrs. 4 periods (4 lec.)

Continuation of LAT 101. Comparative study of English and Latin grammar. Includes emphasis on analytical thinking, memorization, and familiarization with new terminology. Also includes translation to English from original works in Latin and from English to Latin, and topics in ancient Roman history and culture.

**Prerequisite(s):** LAT 101.

Offered: May not be offered this year, check class schedule.

## Law Enforcement Academy

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**LEA 110 Law Enforcement Academy Part I**

24 cr. hrs. 24 periods (24 lec.)

Development of basic concepts, techniques, and applications utilized in law enforcement. Includes an introduction to ethics and leadership, law and legal matters, multicultural issues, as well as community and police relations. Also includes academic and proficiency skill standards required of law enforcement personnel as defined by the Arizona Peace Officer Standards and Training Board (AZ POST).

*Information: Admission to the Law Enforcement Program is restricted and requires completion of program specific application. Please contact the Public Safety and Emergency Services Institute for enrollment information and assistance.*

**LEA 210 Law Enforcement Academy Part II**

23 cr. hrs. 23 periods (23 lec.)

Continuation of LEA 110. Includes increased proficiency of concepts, techniques, and applications utilized in law enforcement, academic and proficiency skills, effective police testimony techniques, review of the United States Constitution, Arizona Revised Statutes (ARS) Title 13, and common civil and criminal liability facing law enforcement agencies and officers. Also includes academic and proficiency skill standards required of law enforcement personnel as defined by the Arizona Peace Officer Standards and Training Board (AZ POST).

**Prerequisite(s):** LEA 110 Law Enforcement Academy Part I

## Literature

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**LIT 124 Introduction to Writers of the Southwest**

3 cr. hrs. 3 periods (3 lec.)

Introduction to reading Mexican-American/Chicano, American Indian, and Anglo writers of the Southwest. Includes short stories, novels, poetry, and creative non-fiction. Also includes relevant comparisons of social, political, and environmental themes in different cultures.

*Information: Students do not need to have a writing prerequisite.*

Offered: May not be offered this year, check class schedule.

**LIT 224 Southwestern Literature**

3 cr. hrs. 3 periods (3 lec.)

Reading of Mexican-American/Chicano, American Indian, and Anglo writers of the Southwest. Includes short stories, novels, poetry, and creative non-fiction. Also includes relevant comparisons of social, political, and environmental themes in different cultures.

Offered: May not be offered this year, check class schedule.

**LIT 225 Science Fiction Literature**

3 cr. hrs. 3 periods (3 lec.)

Survey of science fiction work from the nineteenth through the twenty-first centuries in a variety of forms and media. Includes the development and components of the genre, its subgenres, and critical analysis of science fiction literary works. Also includes the role of technology and social issues in science fiction.

**Prerequisite(s):** WRT 102 or 108.

Offered: May not be offered this year, check class schedule.

**LIT 226 Fantasy Literature: The Epic**

3 cr. hrs. 3 periods (3 lec.)

Survey of fantasy literature in a variety of and media emphasizing the epic tradition. Includes the development and components of the fantasy epic and critical analysis of fantasy epic literary works. Also includes the role of mythology and archetypes in the formation of such works.

**Prerequisite(s):** *WRT 102 or 108.*

Offered: May not be offered this year, check class schedule.

**LIT 231 Introduction to Shakespeare**

3 cr. hrs. 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: Spring.

**LIT 240 American Literature of Opposition**

3 cr. hrs. 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 261 Modern Literature**

3 cr. hrs. 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.

**LIT 262 American Poets**

3 cr. hrs. 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 263 Postmodern Literature**

3 cr. hrs. 3 periods (3 lec.)

Examination of postmodern literary works and voices from the United States, South America, Europe, and a variety of other nations and cultures. Includes analysis of the literature and context of the postmodern period (1945 to the present) with a focus on social and historical influences including technology, mass communication, globalization, politics, protest, and war. Also includes exploration of conventional genres and newer emerging forms, such as metafiction, magic realism, language poetry, and hypertext.

**Prerequisite(s):** *WRT 102 or 108.*

Offered: Spring.

**LIT 265 Major American Writers**

3 cr. hrs. 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. Also 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 cr. hrs. 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 cr. hrs. 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: May not be offered this year, check class schedule.

**LIT 278 Chicano Film and Literature**

3 cr. hrs. 3 periods (3 lec.)

Survey of Chicano film and literature of the twentieth and twenty-first centuries. Includes emergence of the genre and critical analysis of film texts. Also examines how history prompted the development of Chicano film, social, and justice issues.

**Prerequisite(s):** WRT 102 or 108.

Offered: May not be offered this year, check class schedule.

**LIT 289 Literature and Film**

3 cr. hrs. 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: Spring.

## Logistics and Supply Chain Management

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**LGM 101 Principles of Logistics and Supply Chain Management**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the field of logistics and supply chain management. Includes development of logistics systems, careers in logistics, distribution planning, supply chain security, and customer service. Also includes roles and functions of: purchasing, inventory control, physical distribution, warehousing, transportation methods, packaging, and customs.

Offered: Fall, Spring, Summer.

**LGM 102 Inventory Control**

3 cr. hrs. 3 periods (3 lec.)

A study of inventory control concepts and techniques. Includes, cost concepts, determining size and nature of inventory, forecasting, and inventory planning and control. Also includes ordering methods, controlling pilferage, and matching customer demand with supply.

Offered: Spring, Summer.

**LGM 103 Contracts and Freight Claims**

3 cr. hrs. 3 periods (3 lec.)

A study of the considerations involved in the drafting and negotiation of freight and logistics contracts, and of loss avoidance and mitigation in transit. Includes legal and regulatory requirements applicable to contracts for product transportation, and logistics functions and considerations for drafting and negotiating contracts with freight carriers, warehousemen and other logistics service providers. Also includes customer satisfaction, claim preparation, filing procedures, and claim dispute resolution.

Offered: Spring.

**LGM 104 Computerized Logistics**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Analysis of the use of computers in the logistics industry and an introduction to available logistics software. Includes the need for computers, the history and future of computers in the logistics industry, and the impact of computers on customer service. Also includes logistics software availability, selection and implementation, and security measures.

Offered: Spring, Summer.

**LGM 105 Warehouse Management**

3 cr. hrs. 3 periods (3 lec.)

Survey of warehouse function, process, organization and operations. Includes analysis of warehouse location, operation, and management. Also includes controls and procedures, financial analysis, security, cargo/materials handling, and productivity.

Offered: Fall, Summer.

**LGM 106 Transportation and Traffic Management**

3 cr. hrs. 3 periods (3 lec.)

A study of the domestic freight transportation system. Includes demand for freight movement, laws, regulations, pricing, and policies. Also includes traffic management, customer service, security, and international transportation issues.

Offered: Fall.

**LGM 107 Introduction to Purchasing**

3 cr. hrs. 3 periods (3 lec.)

Survey of basic purchasing functions. Includes establishing requirements and quantities, developing policies and procedures for purchasing, making purchasing decisions, receiving acceptable goods, arranging packaging and shipping, and managing inventory levels.

Offered: Fall.

**LGM 108 International Logistics**

3 cr. hrs. 3 periods (3 lec.)

An introduction to the role of logistics in global business. Includes the economic and service characteristics of international transportation providers, the government's role, documentation and terms of sale used in global business, and the fundamentals of effective export and import management.

Offered: Spring.

**LGM 109 Readiness Skills for Logistics Careers**

1 cr. hrs. 1 periods (1 lec.)

Development of career and learning goals. Includes learning and the world of work, careers in Logistics, 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: Spring, Summer.

**LGM 190 Logistics and Supply Chain Internship**

3 cr. hrs. 11 periods (1 lec., 10 lab)

Culmination of logistics program. Includes guidelines and procedures for workplace learning, application of learned concepts on the job. Also includes initiation, management, and completion of capstone project.

*Information: Consent of instructor is required before enrolling in this course.*

*Information: Students must complete 125 hours at a program-approved employer worksite.*

Offered: Fall, Spring, Summer.

## Machine Tool Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**MAC 100 Introduction to Machine Tool**

3 cr. hrs. 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.

**MAC 110 Manual Machine Shop**

4 cr. hrs. 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: Spring.

**MAC 120 Machine Shop II**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Continuation of MAC 110. Includes a more in depth application of safety, lathes, milling machines, and grinding machines.

**Prerequisite(s):** MAC 110 or equivalent with department advisor approval.

Offered: Spring.

**MAC 125 Mechanical Inspection**

4 cr. hrs. 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: Spring.

**MAC 130 Machine Setup and Fixture Making**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Concepts, techniques, and skills in machine setup. Includes how to translate blueprints into fixture making; the application of machine setup; and the making of fixtures.

**Prerequisite(s):** MAC 110.

*Information: Prerequisite may be waived with industry experience. See a machine tool faculty instructor for prerequisite information.*

Offered: Fall.

**MAC 140 Introduction to Electrical Discharge Machining**

4 cr. hrs. 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: Spring.

**MAC 150 Computer Numerical Control (CNC) Mill Programming I**

4 cr. hrs. 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.

**MAC 155 Computer Numerical Control (CNC) Mill Programming II**

4 cr. hrs. 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.

**MAC 160 Computer Numerical Control (CNC) Lathe Programming**

4 cr. hrs. 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 may be waived with industry experience. See a machine tool instructor for prerequisite information.*

Offered: May not be offered this year, check class schedule.

**MAC 245 Wire Electrical Discharge Machining and Programming I**

4 cr. hrs. 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, 150.

Offered: Spring.

**MAC 257 Comp Aided Machining I**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Computer Aided Machining 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 or industry experience.

*Information: Prerequisite may be waived with industry experience. See a machine tool instructor for prerequisite information.*

Offered: Fall.

**MAC 258 Computer Aided Machining (CAM) II**

4 cr. hrs. 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 cr. hrs. 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 cr. hrs. 6 periods (2 lec., 4 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, Spring.

**MAC 296 Machine Tool Independent Projects**

1-4 cr. hrs. 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.*

*Information: Consent of instructor must be obtained before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

# Management

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

## MGT 110 Human Relations in Business and Industry

3 cr. hrs. 3 periods (3 lec.)

Examination of human relations as it relates to business and industry. Includes the roles of the employees, supervisors, and management. Also includes management concepts and functions, communication, leadership, managing change and stress, human motivation, creativity, diversity and culture, and decision making.

Offered: Fall, Spring.

## MGT 122 Supervision

3 cr. hrs. 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. Recommendation: It is recommended that students complete MGT 110 before enrolling in this course.*

Offered: Fall, Spring.

## MGT 124 Small Business Management

3 cr. hrs. 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, Summer.

## MGT 130 Retail Analysis

3 cr. hrs. 3 periods (3 lec.)

Overview of retail analysis that emphasizes the financial performance and standards used within the retailing industry. Includes the fundamentals of business analysis and managing the company's strategic service direction with a focus on the company's business model and its strategic performance. Also includes customer/supplier interactions, quality indicators, cash and profit, fundamentals of business analysis, financial literacy and transparency signs, and service quality benchmarking process.

**Recommendation:** Completion of ACC 101 and MKT 139 before enrolling in this class.

Offered: Spring.

## MGT 210 Environmental Decisions for Business and Industry

3 cr. hrs. 3 periods (3 lec.)

Overview of environmental issues and related decisions pertaining to business and industry. Includes government relationships, the role of the business office, the design and engineering of buildings, case studies on operational decisions, entrepreneurial opportunities, and related ethics.

Offered: May not be offered this year, check class schedule.

## MGT 230 Dynamics of Leadership

3 cr. hrs. 3 periods (3 lec.)

Training in leadership philosophy and application. Includes the changing nature of leadership, vision and mission, strategic planning, team building and group dynamics, managing conflict, anticipating and responding to change, complex systems, multiculturalism, ethics, power and privilege, self-assessment of leadership skills and characteristics, personal definition and philosophy, wellness and renewal, communication skills, presentation and facilitation skills, and designing and completing a leadership project.

*Information: Same as STU 230.*

Offered: Fall, Spring.

**MGT 270 Computer Applications for Managers**

3 cr. hrs. 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, Spring.

**MGT 276 Human Resources**

3 cr. hrs. 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, employee retention, equal employment opportunities, staffing and training, labor relations, and future outlook for personnel management.

**Recommendation:** Completion of BUS 100 before enrolling in this course.

Offered: Spring.

**MGT 280 Business Organization and Management**

3 cr. hrs. 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 284 Health Care Management**

3 cr. hrs. 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: May not be offered this year, check class schedule.

## Marketing

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**MKT 100 Customer Service Skills**

3 cr. hrs. 3 periods (3 lec.)

Overview of the behavior exhibited by successful customer service professionals featuring simulated business settings. Includes conventional behaviors of the workplace, professional communication in the customer service setting, grooming and clothing for a business setting, telephone and email service, effective answers to sales questions, punctuality and the work ethic, professionalism in the workplace, basic qualitative activities, behavior with co-workers, customer service challenges, exceptional customer service, and career advancement strategies in customer service.

Offered: Fall.

**MKT 105 Retail Math**

3 cr. hrs. 3 periods (3 lec.)

Develop merchandising and purchasing policies, procedures, concepts, practices and formulas used in retailing with an emphasis on retail mathematics. Includes how to apply a six-month stock and sales plan setting for retail business.

**Prerequisite(s):** Within the last three years: MAT 086 with a C or better or MAT 089 through module 15 or required score on the mathematics assessment test.

Offered: Fall, Spring.

**MKT 111 Principles of Marketing**

3 cr. hrs. 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 cr. hrs. 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: Spring.

**MKT 125 Advertising**

3 cr. hrs. 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, Spring.

**MKT 139 Retailing**

3 cr. hrs. 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: Fall, Spring.

**MKT 140 Fashion Merchandising**

3 cr. hrs. 3 periods (3 lec.)

Overview of enterprises involved in clothing and accessories. Includes design, production, and sourcing of fashion; marketing, distribution, and the fashion consumer; different silhouettes of apparel and textile characteristics, methods of research for retailing, careers in fashion merchandising, and case studies. Also includes a managerial perspective on apparel product quality and profit in a retail setting.

Offered: Spring.

**MKT 196 Independent Study in Marketing and Business**

.5-3 cr. hrs. 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.*

*Information: May be taken three times for a maximum of nine credit hours.*

Offered: May not be offered this year, check class schedule.

**MKT 240 Fashion Merchandising Planning and Control**

3 cr. hrs. 3 periods (3 lec.)

Survey of analytical skills for the process of merchandising. Includes evaluation of merchandise in clothing sales, merchandise planning, developing the presentation of apparel lines, and finalizing apparel lines through merchandising and budget review. Also includes the application of Web PDM.

**Prerequisite(s):** MKT 140.

Offered: Spring.

**MKT 290 Apparel Merchandising Internship**

3 cr. hrs. 15 periods (15 lab)

Volunteer apparel merchandising field experience at an approved work site. Includes development of a business plan, retail strategies, internship goals and evaluation, and report of day-to-day operations.

**Prerequisite(s):** MKT 240.

*Information: Enrollment and placement contingent upon earned grade point average for students in their final semester of the Apparel Merchandising program. Application and acceptance required.*

Offered: Fall, Spring.

## Mathematics

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### MAT 082 Basic Mathematics

3 cr. hrs. 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 086 Prealgebra

3 cr. hrs. 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.*

*Information: Access to a scanner required for Math class taken online.*

Offered: Fall, Spring, Summer.

### MAT 089 Foundational Studies in Mathematics

3 cr. hrs. 3 periods (3 lec.)

Fundamentals and applications of basic math, elementary algebra, and intermediate algebra.

*Information: The course content is offered in 35 modules which are computer delivered in a structured, individualized learning environment with on-demand instruction assistance. Attendance at regularly scheduled classes is required. The course may be taken four times for a maximum of twelve credit hours. Most students will take this course more than once. To earn a passing grade, students must successfully complete a minimum of 9 modules. Upon successful completion of module 35, a student's enrollment is converted to and credit is received for Mat 122Z.*

Offered: Fall, Spring, Summer.

### MAT 092 Elementary Algebra

3 cr. hrs. 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 required score on the Mathematics assessment test.

*Information: Access to a scanner required for Math classes taken online.*

*Information: MAT 092A, 092B, and 092C together constitute MAT 092.*

Offered: Fall, Spring, Summer.

### MAT 106 Elementary Data Analysis with Spreadsheets

2 cr. hrs. 2 periods (2 lec.)

Introduction to statistics. Includes the collection and presentation of data, statistical measures, algebra topics, Excel topics, and data analysis topics.

**Prerequisite(s):** Within the last three years: MAT 086 with a C or better or MAT 089 through Module 15 or required score on the mathematics assessment test.

Offered: Fall, Spring.

### MAT 108 Practical Geometry and Trigonometry

2 cr. hrs. 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 MAT 089 through Module 15 or satisfactory score on the mathematics assessment test.

Offered: Fall, Spring.



**MAT 122 Intermediate Algebra**

3 cr. hrs. 3 periods (3 lec.)

Basic algebraic functions. Includes lines in the plane, systems of linear equations, inequalities, absolute value, polynomials, rational expressions and equations, and 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: No more than 3 credit hours can be applied toward graduation for MAT 122, 122Z and/or 123.*

*Information: Access to a scanner required for Math classes taken online.*

*Information: Not a university level course.*

Offered: Fall, Spring, Summer.

**MAT 122Z Intermediate Algebra**

3 cr. hrs. 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, logarithms, functions, and optional topics.

*Information: Upon completion of all modules of MAT 089, students will have met all of the competencies of MAT122 and will receive credit equivalent to MAT 122Z. No more than 3 credit hours can be applied toward graduation for MAT 122, 122Z, and/or 123.*

Offered: Fall, Spring.

**MAT 123 Pre-College Algebra**

5 cr. hrs. 5 periods (5 lec.)

Basic and intermediate algebra concepts. Includes translating written statements into algebraic expressions, linear equations, linear inequalities, graphing, integer exponents, and polynomials. Also includes factoring, rational and radical expressions and equations, square roots, quadratic equations, functions, exponential and logarithmic expressions.

**Prerequisite(s):** *Within the last three years: MAT 086 with C or better or required score on the Mathematics assessment test.*

*Information: No more than 3 credit hours can be applied toward graduation for MAT 122, 122Z and/or 123. Access to a scanner required for Math classes taken online. Not a university level course.*

**MAT 142 Topics in College Mathematics**

3 cr. hrs. 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, 122Z, or 123 with a C or better or required score on the mathematics assessment exam.*

Offered: Fall, Spring, Summer.

**MAT 144 College Algebra with Data Analysis**

4 cr. hrs. 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, 122Z or 123 with a C or better, or required score on the mathematics assessment test.*

*Information: Basic computer skills are required and may be attained through CSA 101 or 110 or 110A. See an advisor or mathematics faculty member for information.*

Offered: Fall, Spring.

**MAT 145 Mathematics for Game Design**

4 cr. hrs. 4 periods (4 lec.)

Survey of mathematical topics and applications as applied to game design. Includes 2D and 3D geometry, geometric symmetry, trigonometry, vectors, logic, probability, statistics, and problem solving.

**Prerequisite(s):** *Within the last three years: MAT 122, 122Z or 123 with a C or better, or satisfactory score on the Mathematics assessment exam.*

Offered: Spring.

**MAT 146 Mathematics for Elementary Teachers I**

3 cr. hrs. 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 144 or 151 or higher with a C or better, or mathematics assessment into MAT 167 or higher.*

*Information: Access to a scanner required for math classes taken online.*

Offered: Fall, Spring.

**MAT 147 Mathematics for Elementary Teachers II**

3 cr. hrs. 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.

**MAT 151 College Algebra SUN# MAT 1151**

4 cr. hrs. 4 periods (4 lec.)

Introduction to college-level algebra. Includes functions, polynomial and rational functions, exponential and logarithmic functions, linear  $2 \times 2$  and higher systems, graphing, sequences and series, and calculator use.

**Prerequisite(s):** *Within the last three years: MAT 122, 122Z, or 123 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.*

*Information: A graphing calculator is required. See your instructor for details.*

*Information: Access to a scanner required for Math classes taken online.*

Offered: Fall, Spring, Summer.

**MAT 167 Introductory Statistics SUN# MAT 1160**

3 cr. hrs. 3 periods (3 lec.)

Introduction to statistics. Includes the nature of statistics, quantitative data, probability, probability distributions and the central limit theorem. Also includes estimates for population parameters, hypothesis testing, correlation with regression, and additional topics with choices from chi square distribution, ANOVA and/or nonparametric methods.

**Prerequisite(s):** *Within the last three years: MAT 144 or 151 with a C or better, or required score on the Mathematics assessment test.*

*Information: Use of a graphing calculator and/or computer programs may be required at the discretion of the instructor. Access to a scanner required for math classes taken online.*

Offered: Fall, Spring, Summer.

**MAT 172 Finite Mathematics**

3 cr. hrs. 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 cr. hrs. 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: a C or better in either MAT 144 or in a combination of MAT 151 (or required score on mathematics assessment exam) and CSA 110 or 110A.*

*Information: Basic knowledge of Excel is required and can be met through MAT 144, or CSA 110 or 110A. See a mathematics faculty member for information.*

Offered: May not be offered this year, check class schedule.

**MAT 174 Mathematics for Business II**

3 cr. hrs. 3 periods (3 lec.)

Continuation of MAT 173. Includes distributions, normal distributions, basic statistics, integration, common business functions, differentiation, and computer skills.

**Prerequisite(s):** Within the last three years: MAT 173 with a C or better.

Offered: May not be offered this year, check class schedule.

**MAT 182 Trigonometry**

3 cr. hrs. 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.

*Information:* Access to a scanner required is for math classes taken online.

Offered: Fall, Spring, Summer.

**MAT 187 Precalculus SUN# MAT 1187**

5 cr. hrs. 5 periods (5 lec.)

College-level algebra and trigonometry. Includes equations, algebraic and transcendental functions, inequalities, systems of equations, conic sections, sequences and series, trigonometric functions, polar form, calculator use, and partial fractions. Also includes intensive preparation for analytic geometry and calculus.

**Prerequisite(s):** Within the last three years: MAT 122, 122Z, or 123 with a B or better, or required score on the Mathematics assessment test.

**Recommendation:** Fast-paced course for motivated students who have strong algebra skills and some trigonometry background.

*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.

*Information:* A graphing calculator will be required for this course and will be used extensively.

Offered: Fall, Spring, Summer.

**MAT 212 Topics in Calculus**

3 cr. hrs. 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 SUN# MAT 2220**

5 cr. hrs. 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 SUN# MAT 2227**

4 cr. hrs. 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.

Offered: Fall.

**MAT 231 Calculus II SUN# MAT 2230**

4 cr. hrs. 4 periods (4 lec.)

Continuation of MAT 220. Includes techniques and applications of integration, numerical integration, improper integrals, separable integrals, separable differential equations, sequences, infinite series, and other related topics.

**Prerequisite(s):** Within the last three years: MAT 220 with a C or better.

Offered: Fall, Spring, Summer.

**MAT 241 Calculus III SUN# MAT 2241**

4 cr. hrs. 4 periods (4 lec.)

Continuation of MAT 231. Includes vectors in two and three dimensions, vector-valued functions, differentiation and integration of multivariable functions, and calculus of vector fields.

**Prerequisite(s):** *Within the last three years: MAT 231 with a C or better.*

Offered: Fall, Spring.

**MAT 252 Introduction to Linear Algebra**

3 cr. hrs. 3 periods (3 lec.)

Introduction to vector spaces and linear transformations. Includes systems of linear equations, vector spaces, inner product spaces, matrices, and linear transformations.

**Prerequisite(s):** *Within the last three years: MAT 231 with a C or better.*

Offered: Fall, Spring.

**MAT 262 Differential Equations SUN# MAT 2262**

3 cr. hrs. 3 periods (3 lec.)

Introduction to differential equations. Includes first order differential equations, higher order differential equations, systems of linear differential equations, Laplace transforms, and approximating methods. Also includes applications.

**Prerequisite(s):** *Within the last three years: MAT 231 with a C or better.*

Offered: Fall, Spring.

**MAT 296 Independent Studies in Mathematics**

1-4 cr. hrs. 1-4 periods (1-4 lec.)

Independent studies and projects in mathematics. Content to be determined by conference between student and instructor.

*Information: Consent of a sponsoring instructor must be obtained before registering in this class.*

Offered: May not be offered this year, check class schedule.

## Medical Assistant

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**MDA 120 Medical Assistant Profession**

2 cr. hrs. 2 periods (2 lec.)

Overview of current health care professions, including labor market information, health care delivery systems, and health care payment sources. Includes health organization structure, patient rights and quality care, ethics and behaviors in the workplace, legal issues in health care, and personal responsibility for health and safety. Also includes basic communication skills, teamwork facilitation, student success skills, and college resources for students.

Offered: Contact department at 206-5100.

**MDA 121 Medical Assistant Skills for Success**

2 cr. hrs. 2 periods (2 lec.)

Professional and personal success tools, skills, and resources for medical assistants. Includes exploration of career options, job search skills, and portfolio development. Also includes wellness and safety, critical thinking, time management, stress management, self-esteem, gender awareness, assertiveness training, and the investigation of useful community resources.

Offered: Contact department at 206-5100.

**MDA 122 Medical Assistant Clinical Care**

2 cr. hrs. 4 periods (1 lec., 3 lab)

Multi-discipline approach to patient care. Includes asepsis, phlebotomy, electrocardiograms, dressing care, specimen collection and handling, urinalysis, whole blood hematology, glucose monitoring, and cholesterol and coagulation testing. Also includes principles of medication with an emphasis on oral and parenteral routes of drug administration. Also includes legal and ethical standards, and compliance with Occupational Health and Safety Administration (OSHA) and Clinical Laboratory Improvement Amendments (CLIA) regulations.

Offered: Contact department at 206-5100.

**MDA 123 Medical Assistant Clinical Procedures**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Principles and procedures for the medical assistant. Includes methods of assisting clinicians with physical examinations, procedures, treatments, and minor surgical procedures in the medical office. Also includes collecting vital signs; height, weight, and other patient data; and appropriate documentation for the completion of patient histories.

Offered: Contact department at 206-5100.

**MDA 124 Medical Terminology for Health Care Workers**

2 cr. hrs. 2 periods (2 lec.)

Medical terminology used in health care, including descriptors of special care populations and specialty services. Encompasses a body systems approach to terms as they relate to structures, functions, diseases, procedures, and diagnostic tests. Also encompasses medical abbreviations and symbols, spelling, and building and analyzing terms using word parts.

Offered: Contact department at 206-5100.

**MDA 125 Orientation to ICD-9 Coding**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Orientation to the International Classification of Diseases - 9th Edition (ICD-9) coding classification system. Includes terminology, principles and components of the ICD-9 system, codes for diseases and conditions, coding from health records, and coding for the highest specificity.

**Recommendation:** Completion of MDA 121 and 124 before enrolling in this course. Also a minimum of 25 words per minute word processing skills.

Offered: Contact department at 206-5100.

**MDA 126 Medical Billing and Insurance for Medical Assistants**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Application of insurance, billing, and coding in the medical profession. Includes federal, state and private insurance claims; procedural and diagnostic coding; and banking and accounting principles. Also includes legal and ethical issues.

**Recommendation:** Minimum of 25 words per minute word processing skills.

Offered: Contact department at 206-5100.

**MDA 127 Administrative Procedures for Medical Assistants**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Principles and procedures for front office administration. Includes telephone policy and customer service, correspondence and mail processing, appointment scheduling, medical records management and data collection. Also includes an overview of the medical assistant as office manager.

Offered: Contact department at 206-5100.

**MDA 190A Medical Assistant Front Office Externship**

1 cr. hrs. 5 periods (5 lab)

Practicum in administrative medical assisting. Application of administrative duties, procedures, and knowledge derived from medical assisting courses.

**Prerequisite(s):** HCA 119 and MDA 120, 121, 124, 125, 126, 127.

*Information:* Permission of the program director is required to enroll in this course.

Offered: Contact department at 206-5100.

**MDA 190B Medical Assistant Back Office Externship**

1 cr. hrs. 5 periods (5 lab)

Practicum in clinical medical assisting. Application of clinical skills, procedures, and knowledge derived from medical assisting courses.

**Prerequisite(s):** HCA 103, 119 and MDA 120, 121, 122, 123, 124.

*Information:* Permission of the program director is required to enroll in this course.

Offered: Contact department at 206-5100.

## Medical Laboratory Technician

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### MLT 101 Phlebotomy for Medical Laboratory Technology

3 cr. hrs. 5 periods (2 lec., 3 lab)

Theory and practice of basic phlebotomy techniques and procedures. Includes blood collection for patient care, quality assurance standards, medical terminology, anatomy, blood collection procedures, variables, computers and specimen processing, and point of care (POC) testing.

**Prerequisite(s):** BIO 156IN or 160IN or 201IN or 202IN.

Offered: Fall, Spring.

### MLT 110 Techniques and Mathematics for the Laboratory

2 cr. hrs. 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: Same as BIO 110.

Offered: May not be offered this year, check class schedule.

### MLT 199 Introductory Co-op: Phlebotomy Lab Assisting

1 cr. hrs. 1 periods (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.

**Prerequisite(s):** MLT 101.

**Corequisite(s):** MLT 199WK

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

### MLT 199WK Introductory Co-op Work: Phlebotomy Lab Assisting

1.25 cr. hrs. 6.25 periods (6.25 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, or outpatient collection station. The student develops competency and improved self confidence in the laboratory workplace.

**Prerequisite(s):** MLT 101.

**Corequisite(s):** MLT 199

Information: Consent of instructor is required before enrolling in this course.

Offered: Fall, Spring, Summer.

### MLT 200 Urinalysis/Body Fluids

3 cr. hrs. 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, body fluids, and phlebotomy review.

Offered: Fall.

### MLT 211 Hematology

5 cr. hrs. 7 periods (4 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, tests, normal white cells in peripheral blood, blood cell maturation, and normal and abnormal white and red blood cells. Also includes disease states, hemoglobins, facets of hemostasis, coagulation mechanism and abnormalities, the fibrinolytic system, instrumentation, and quality controls and quality insurance.

Information: Students must be admitted to the Medical Laboratory Technician program or obtain consent of instructor before enrolling in this course.

Offered: Spring.

### MLT 221 Clinical Chemistry

4 cr. hrs. 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.

Offered: Spring.

**MLT 231 Immunohematology/Immunology**

5 cr. hrs. 7 periods (4 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, genetics, blood group systems, antiglobulin testing, gel and solid phase testing, and identification of unexpected antibodies. Also includes neonatal and obstetrical transfusion practice, pre-transfusion compatibility testing, International Society of Blood Transfusion (ISBT) product labeling, adverse effects of blood transfusions, positive direct antiglobulin test (DAT), immune hemolysis, quality assurance, transplantation, and molecular testing.

*Information: Students must be admitted to the Medical Laboratory Technician program or obtain consent of instructor before enrolling in this course.*

Offered: Fall.

**MLT 251 Clinical Microbiology**

5 cr. hrs. 9 periods (3 lec., 6 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, fungi, and viruses and other microorganisms.

*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, and antibiotic susceptibility testing.*

Offered: Fall.

**MLT 260 Parasitology and Immunology/Serology**

3 cr. hrs. 5 periods (2 lec., 3 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.

Offered: Spring.

**MLT 299 Advanced Co-op: Medical Laboratory Technician**

1 cr. hrs. 1 periods (1 lec.)

Comprehensive review of course work to prepare the student for national certifying examinations, provide a forum for discussion of current issues and technologies in clinical laboratory science, and augment the concurrent clinical experience. Students share their experience in the clinical area through discussion of topics of interest and presentation of case studies.

**Prerequisite(s):** MLT 101, 199/199WK, 200, 211, 221, 231, 251, 260.

**Corequisite(s):** MLT 299WK

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring.

**MLT 299WK Advanced Co-op Work: Medical Laboratory Technician**

8 cr. hrs. 40 periods (40 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.

**Prerequisite(s):** MLT 101, 199/199WK, 200, 211, 221, 231, 251, 260.

**Corequisite(s):** MLT 299

*Information: Consent of instructor is required before enrolling in this course.*

Offered: Fall, Spring.

## Mexican-American Studies

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### MAS 201 La Chicana

3 cr. hrs. 3 periods (3 lec.)

Interdisciplinary analysis of Chicanas/Mexicanas' status in the United States. Includes interdisciplinary analysis of Chicanas/Mexicanas in the U.S., Chicana/Mexicana scholarship and Social Justice Movements, and Chicana/Mexicana feminism in the Southwest, Chicana/Mexicana community empowerment, Chicanas/Mexicanas on the U.S.-Mexico border.

*Information: Same as WST 201.*

*Offered: May not be offered this year, check class schedule.*

### MAS 208 United States-Mexico Borderlands

3 cr. hrs. 3 periods (3 lec.)

Study of the U.S.-Mexico borderlands. Includes a historical overview from the borderlands origins in the U.S.-Mexico War and the Treaty of Guadalupe Hidalgo and a comprehensive review of the most significant events and issues of the mid-20th Century to the present. Also includes geography, sociodemographics, political economy, migration and transmigrants, media representations, U.S. border policies, enforcement and in/security, violence and peace, gender and sexuality, U.S.-Mexico relations, and popular culture.

*Offered: May not be offered this year, check class schedule.*

### MAS 265 Survey of Mexican-American Studies

3 cr. hrs. 3 periods (3 lec.)

Interdisciplinary analysis of current issues salient to the Chicana/o population in the United States. Includes analysis of Chicanas/os in the the U.S., Chicana/o and Mexican interdisciplinary scholarship and social justice movements, and Chicanas/os and Mexican migration to the U.S.

*Offered: May not be offered this year, check class schedule.*

## Music

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### MUS 052 Introduction to Ear Training

2 cr. hrs. 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 (treble and bass clef), 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 055 Introduction to Piano I (Non Major)

2 cr. hrs. 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, repertoire pieces, technique and finger strength, and learning and practice methods. Also includes transposition of simple compositions, sight reading, and harmonizations of melodies.

*Information: Designed for non-music majors.*

*Offered: Fall, Spring.*

### MUS 056 Introduction to Piano II (Non Major)

2 cr. hrs. 2 periods (2 lec.)

Continuation of MUS 055. Expansion and refinement of piano playing techniques. Includes major and minor scales, chords, repertoire pieces, technique, learning and practice methods, transposition, sight reading, and harmonizations.

**Prerequisite(s):** MUS 055.

*Information: Designed for non-music majors.*

*Offered: Spring.*



**MUS 100 Guitar I**

2 cr. hrs. 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.

**MUS 101 Guitar II**

2 cr. hrs. 2 periods (2 lec.)

Continuation of MUS 100. Includes more detailed development of guitar skills, musicianship, sight-reading, repertoire development, ensemble playing, and improvisation.

**Prerequisite(s):** MUS 100.

*Information: Prerequisites may be waived with consent of instructor.*

Offered: Spring.

**MUS 102 Music Fundamentals**

3 cr. hrs. 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 concurrently enroll in MUS 052 and 102.

Offered: Fall, Spring.

**MUS 103 Music Theory Review**

1 cr. hrs. 1 periods (1 lec.)

Intensive review of music fundamentals. Includes clefs and basic pitch notation, scales, key signatures, intervals, and triads.

*Information: May be taken three times for a maximum of three credit hours.*

Offered: Fall, Spring.

**MUS 108 Pima Jazz Band**

2 cr. hrs. 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.*

*Information: May be taken ten times for a maximum of twenty credit hours, but a maximum of three credits will apply toward the AGEC.*

Offered: Fall, Spring.

**MUS 111 Exploring Music through Piano**

3 cr. hrs. 3 periods (3 lec.)

Keyboard application skills and music fundamentals. Includes keyboard orientation, tonality, piano proficiency, musical structure, musical texture, and style. Also includes global topics of arts in education and society and historical/stylistic trends through the evolution of keyboard instruments and composition.

Offered: Fall, Spring.

**MUS 116 Pima Community College Orchestra**

2 cr. hrs. 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.*

*Information: May be taken ten times for a maximum of twenty credit hours.*

Offered: Fall, Spring.

**MUS 120 Concert Band**

3 cr. hrs. 7 periods (1 lec., 6 lab)

Progressive development of musical skills through interpretation of literature. Includes participation in regular rehearsals and performances.

*Information: Students chosen by audition.*

*Information: May be taken ten times for a maximum of thirty credit hours.*

Offered: Fall, Spring.

**MUS 125 Structure of Music I**

3 cr. hrs. 3 periods (3 lec.)

Review of music fundamentals. Includes form and analysis, non-harmonic 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, secondary dominants, and chorale harmonizations.

*Information: Required for all other music structure courses. Students who are music majors take MUS 125 and 127 concurrently. Music majors must also concurrently enroll in the appropriate level of studio instruction course. Consult a full time music faculty member for additional information.*

Offered: Fall, Spring.

**MUS 126 Structure of Music II**

3 cr. hrs. 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

*Information: Music majors must concurrently enroll in the appropriate level of studio instruction course. Consult a full time music faculty member for additional information.*

Offered: Spring, Summer.

**MUS 127 Aural Perception I**

2 cr. hrs. 2 periods (2 lec.)

Development of aural techniques. Includes rhythmic dictation, intervallic recognition, sight singing, rhythmic performance, and clapping and counting rhythms.

*Information: Required for all other music aural perception courses.*

*Information: Students who are music majors take MUS 125 and 127 concurrently.*

*Information: Music majors must also concurrently enroll in the appropriate level of studio instruction course. Consult a full time music faculty member for additional information.*

Offered: Fall, Spring.

**MUS 129 Aural Perception II**

2 cr. hrs. 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

*Information: Music majors must concurrently enroll in the appropriate level of studio instruction course. Consult a full time music faculty member for additional information.*

Offered: Spring, Summer.

**MUS 130 Chorale (SATB)**

3 cr. hrs. 4 periods (2 lec., 2 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: May be taken ten times for a maximum of thirty credit hours.*

Offered: Fall, Spring.

**MUS 131 College Singers (SATB)**

3 cr. hrs. 4 periods (2 lec., 2 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.*

*Information: May be taken ten times for a maximum of thirty credit hours.*

Offered: Fall, Spring.

**MUS 136 Voice Class I**

2 cr. hrs. 2 periods (2 lec.)

Practical training in basic skills and singing without specialization. Includes techniques, group singing, individual practice, and individual performance.

Offered: Fall, Spring.

**MUS 141 Piano Class I (Majors)**

2 cr. hrs. 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 (Majors)**

2 cr. hrs. 2 periods (2 lec.)

Continuation of MUS 141. Incorporates intermediate piano instruction utilizing group and individual practice with electronic pianos. 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, Summer.

**MUS 143 Piano Class III (Majors)**

2 cr. hrs. 2 periods (2 lec.)

Continuation of MUS 142. Incorporates intermediate piano instruction utilizing group and individual practice with electronic pianos. Includes scales, chords, arpeggios, harmonizations of major and minor pieces, transposition of pieces, repertoire pieces, technique and practice habits, sight reading, and score reading.

**Prerequisite(s):** MUS 142.

Offered: Fall.

**MUS 144 Piano Class IV (Majors)**

2 cr. hrs. 2 periods (2 lec.)

Continuation of MUS 143. Incorporates advanced piano instruction utilizing group and individual practice with electronic pianos. Includes scales, arpeggios, learning methods, technique building exercises, memory method, and advanced methods of practicing.

**Prerequisite(s):** MUS 143.

Offered: Spring.

**MUS 148 Musical Theater Workshop**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Movement and singing to enhance projection and communication capabilities in musical theater. Includes exercise in stage movement, staging and memorization of scenes, performance and musical theater, and reevaluation and practice.

*Information: May be taken four times for a maximum of eight credit hours.*

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUS 149 Opera Workshop**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Introduction to the techniques of opera. Includes exercise in stage movement, musical preparation, staging and memorization of scenes, performance of opera, and reevaluation and practice.

*Information: May be taken four times for a maximum of eight credit hours.*

*Information: Student chosen by audition.*

Offered: Spring.

**MUS 151 Exploring Music**

3 cr. hrs. 3 periods (3 lec.)

Introduction to various historical musical styles. Includes elements of music, musical instruments, the Middle Ages, the Renaissance, the Baroque era, classics, and the Nineteenth and Twentieth centuries.

Offered: Fall, Spring, Summer.

**MUS 154 Jazz Improvisation**

2 cr. hrs. 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.*

*Information: May be taken ten times for a maximum of twenty credit hours.*

Offered: Fall, Spring.

**MUS 155 Introduction to Electronic Music I**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to producing music with Musical Instrument Digital Interface (MIDI) configurations and WAV sounds. Includes concepts in acoustics and music synthesis, use of hardware and software, music notation software, music sequencing software, and documentation of projects. Also includes computers, printers, and keyboard controller.

**Recommendation:** Ability to read music before enrolling in this course.

Offered: Fall, Spring.

**MUS 156 Introduction to Electronic Music II**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of MUS 155. Includes song data entry from computer synthesizer keyboards, editor/library, and percussion writing.

**Prerequisite(s):** MUS 155.

Offered: Spring.

**MUS 157 Music Industry I: Marketing, Merchandising and the Law**

3 cr. hrs. 3 periods (3 lec.)

Operation, scope, and career opportunities in the music business. Includes music in the marketplace, professional songwriting and music composition, music copyright and publishing, business affairs in the music industry, and application of information.

Offered: Fall.

**MUS 158 Music Industry II: Music in Recording and Mass Media**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Study of the history of popular music culture in America through current trends in today's society. Includes background of music, sources of music, birth of music, syncopated song and dance, jazz, crooners and jazz singers, musical theater, country music, Latin music traditions, and roots of rock and roll. Also includes impact of technology, motown and soul, rock in the seventies, and modern trends.

Offered: Fall, Spring, Summer.

**MUS 201 History and Literature of Music I**

3 cr. hrs. 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: Fall.

**MUS 202 History and Literature of Music II**

3 cr. hrs. 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 cr. hrs. 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: May not be offered this year, check class schedule.

**MUS 223 Structure of Music III SUN# MUS 2222\***

3 cr. hrs. 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, and concerto form.

**Prerequisite(s):** MUS 126.

**Corequisite(s):** MUS 224

*Information: Music majors must concurrently enroll in the appropriate level of studio instruction course. Consult a full time music faculty member for additional information.*

Offered: Fall.

**MUS 224 Aural Perception III SUN# MUS 2222\***

2 cr. hrs. 2 periods (2 lec.)

Continuation of MUS 129. Includes scales, intervallic recognition, melodic dictation of melodies, chord type identification, rhythmic dictation and performing notated rhythms, syncopated rhythms, and sight singing melodies. Also includes motives and motivic development, themes and thematic development, and conducting while performing various rhythms and melodies.

**Prerequisite(s):** MUS 129.

**Corequisite(s):** MUS 223

*Information: Music majors must concurrently enroll in the appropriate level of studio instruction course. Consult a full time music faculty member for additional information.*

Offered: Fall.

**MUS 226 Structure of Music IV SUN# MUS 2223\***

3 cr. hrs. 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

*Information: Music majors must concurrently enroll in the appropriate level of studio instruction course. Consult a full time music faculty member for additional information.*

Offered: Spring.

**MUS 228 Aural Perception IV SUN# MUS 2223\***

2 cr. hrs. 2 periods (2 lec.)

Continuation of MUS 224. Includes scales and modes, intervallic recognition, melodic dictation, chord type identification, chord progressions, modulation types rhythmic dictation, and syncopated rhythms, cross-rhythms, hemiola, and asymmetrical meter. Also includes sight singing melodies, motives and motivic development, themes and thematic development, and conducting while performing various rhythms and melodies.

**Prerequisite(s):** MUS 224.

**Corequisite(s):** MUS 226

*Information: Music majors must concurrently enroll in the appropriate level of studio instruction course. Consult a full time faculty member for additional information.*

Offered: Spring.

**MUS 257 Music Recording and Production**

3 cr. hrs. 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.

*\*Both MUS 223 and 224 must be completed in order to get the MUS 2222 SUN designation.*

*\*\*Both MUS 226 and 228 must be completed in order to get the MUS 2223 SUN designation.*

## Music Studio Instruction

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### MUP 061 Studio Instruction: Brass (Pre Major)

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

**Corequisite(s):** (MUS 052 and 102) or (MUS 125 and 127).

*Information: Audition as a music major. Faculty signature required before enrolling in this course. Contact the music department for audition and placement information. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

### MUP 062 Studio Instruction: Guitar (Pre Major)

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills to be stressed.

**Corequisite(s):** (MUS 052 and 102) or (MUS 125 and 127).

*Information: Audition as a music major and faculty signature required before enrolling in this course. Contact the music department for audition and placement information. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

### MUP 063 Studio Instruction: Percussion (Pre Major)

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

**Corequisite(s):** (MUS 052 and 102) or (MUS 125 and 127).

*Information: Audition as a music major and faculty signature required before enrolling in this course. Contact the music department for audition and placement information. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

### MUP 064 Studio Instruction: Piano (Pre Major)

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

**Corequisite(s):** (MUS 052 and 102) or (MUS 125 and 127).

*Information: Audition as a music major and faculty signature required before enrolling in this course. Contact the music department for audition and placement information. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

### MUP 065 Studio Instruction: Strings (Pre Major)

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

**Corequisite(s):** (MUS 052 and 102) or (MUS 125 and 127).

*Information: Audition as a music major and faculty signature required before enrolling in this course. Contact the music department for audition and placement information. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

### MUP 066 Studio Instruction: Voice (Pre Major)

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

**Corequisite(s):** (MUS 052 and 102) or (MUS 125 and 127).

*Information: Audition as a music major and faculty signature required before enrolling in this course. Contact the music department for audition and placement information. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

**MUP 067 Studio Instruction: Woodwinds (Pre Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

**Corequisite(s):** (MUS 052 and 102) or (MUS 125 and 127).

*Information: Audition as a music major and faculty signature required before enrolling in this course. Contact the music department for audition and placement information. May be taken two times for a maximum of four credit hours.*

Offered: Fall, Spring.

**MUP 161 Studio Instruction: Brass I (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 162 Studio Instruction: Guitar I (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 163 Studio Instruction: Percussion I (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 164 Studio Instruction: Piano I (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 165 Studio Instruction: Strings I (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 166 Studio Instruction: Voice I (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 167 Studio Instruction: Woodwinds I (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 168 Studio Instruction I: (Major)**

2 cr. hrs. 4 periods (4 lab)

Weekly studio instruction. Includes participation in student recitals and jury exams.

**Corequisite(s):** MUS 125, MUS 127

*Information: Students chosen by audition.*

Offered: Fall, Spring.

**MUP 171 Studio Instruction: Brass II (Major)**

2 cr. hrs. 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.

**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.

**MUP 172 Studio Instruction: Guitar II (Major)**

2 cr. hrs. 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.

**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.

**MUP 173 Studio Instruction: Percussion II (Major)**

2 cr. hrs. 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.

**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.

**MUP 174 Studio Instruction: Piano II (Major)**

2 cr. hrs. 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.

**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.

**MUP 175 Studio Instruction: Strings II (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 165. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 165.

**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.

**MUP 176 Studio Instruction: Voice II (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 166. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 166.

**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.



**MUP 177 Studio Instruction: Woodwinds II (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 167. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 167.**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.

**MUP 178 Studio Instruction II: (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 168. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 168.**Corequisite(s):** MUS 126, MUS 129

Offered: Fall, Spring.

**MUP 261 Studio Instruction: Brass III (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 171. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 171.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 262 Studio Instruction: Guitar III (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 172. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 172.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 263 Studio Instruction: Percussion III (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 173. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 173.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 264 Studio Instruction: Piano III (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 174. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 174.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 265 Studio Instruction: Strings III (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 175. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 175.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 266 Studio Instruction: Voice III (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 176. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 176.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 267 Studio Instruction: Woodwinds III (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 177. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 177.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 268 Studio Instruction III: (Major)**

2 cr. hrs. 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.**Corequisite(s):** MUS 223, MUS 224

Offered: Fall, Spring.

**MUP 271 Studio Instruction: Brass IV (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 261. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 261.**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

**MUP 272 Studio Instruction: Guitar IV (Major)**

2 cr. hrs. 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.**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

**MUP 273 Studio Instruction: Percussion IV (Major)**

2 cr. hrs. 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.**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

**MUP 274 Studio Instruction: Piano IV (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 264. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 264.**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

**MUP 275 Studio Instruction: Strings IV (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 265. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 265.

**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

**MUP 276 Studio Instruction: Voice IV (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 266. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 266.

**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

**MUP 277 Studio Instruction: Woodwinds IV (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 267. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 267.

**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

**MUP 278 Studio Instruction IV: (Major)**

2 cr. hrs. 4 periods (4 lab)

Continuation of MUP 268. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

**Prerequisite(s):** MUP 268.

**Corequisite(s):** MUS 226, MUS 228

Offered: Fall, Spring.

## Nursing

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**NRS 104 Nursing Process I**

4 cr. hrs. 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) or Prerequisite(s):** WRT 101.

**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 cr. hrs. 9 periods (9 lab)

This is the Clinical Lab portion of NRS 104.

**Corequisite(s) or Prerequisite(s):** WRT 101.

**Corequisite(s):** HCA 102, HCA 155, NRS 104, 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 104LS Nursing Process I Skills Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Skills Lab portion of NRS 104.

**Corequisite(s) or Prerequisite(s):** WRT 101.

**Corequisite(s):** HCA 102, HCA 155, NRS 104, NRS 104LC

*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 105 Nursing Process II**

4 cr. hrs. 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):** HCA 102, 155, NRS 104, 104LC, 104LS, WRT 101.

**Corequisite(s) or Prerequisite(s):** BIO 205IN, ECE 107 or PSY 240.

**Corequisite(s):** NRS 105LC, NRS 105LS

*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 cr. hrs. 12 periods (12 lab)

This is the Clinical Lab portion of NRS 105.

**Prerequisite(s):** HCA 102, 155, NRS 104, 104LC, 104LS, WRT 101.

**Corequisite(s) or Prerequisite(s):** BIO 205IN, ECE 107 or PSY 240.

**Corequisite(s):** NRS 105, NRS 105LS

Offered: Fall, Spring.

**NRS 105LS Nursing Process II Skills Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Skills Lab portion of NRS 105.

**Prerequisite(s):** HCA 102, 155, NRS 104, 104LC, 104LS, WRT 101.

**Corequisite(s) or Prerequisite(s):** BIO 205IN, ECE 107 or PSY 240.

**Corequisite(s):** NRS 105, NRS 105LC

Offered: Fall, Spring.

**NRS 180 Transition to Practical Nursing**

2 cr. hrs. 2 periods (2 lec.)

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 in the care of the childbearing family, the pediatric client and the client experiencing alterations in mental health and cognitive functioning. Also includes additional clinical laboratory application of selected nursing skills and knowledge in the care of 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, and 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: May not be offered this year, check class schedule.

**NRS 180LC Transition to Practical Nursing Lab**

.5 cr. hrs. 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 cr. hrs. 4 periods (4 lec.)

Non-clinical 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, major concepts and program outcomes of the ADN program, and focuses on adult clients experiencing selected health alterations.

**Corequisite(s) or Prerequisite(s):** BIO 205IN, ECE 107 or PSY 240.

**Corequisite(s):** NRS 188LS

*Information: In order to enroll in this course, the student must hold a current valid Licensed Practical Nurse (LPN) license in Arizona. The student 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 cr. hrs. 3 periods (3 lab)

This is the Skills Lab portion of NRS 188.

**Corequisite(s) or Prerequisite(s):** BIO 205IN, ECE 107 or PSY 240.

**Corequisite(s):** NRS 188

*Information: In order to enroll in this course, the student must hold a current valid Licensed Practical Nurse (LPN) license in Arizona. The student 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 196 Independent Study in Nursing**

1-9 cr. hrs. 1-9 periods (1-9 lec.)

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 cr. hrs. 5 periods (5 lec.)

Continuation of NRS 105 or NRS 188. Application of the nursing process and expansion of the concepts of nurse, health, client, and environment, with an emphasis on the family and 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. Also includes professional and ethical issues related to provision of nursing care.

**Prerequisite(s):** BIO 205IN, ECE 107 or PSY 240, NRS 105, 105LC, 105LS.

**Corequisite(s) or Prerequisite(s):** BIO 127IN or FSN 127, WRT 102.

**Corequisite(s):** NRS 201LC, and 203.

*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 cr. hrs. 12 periods (12 lab)

This is the clinical lab portion of NRS 201.

**Prerequisite(s):** BIO 205IN, ECE 107 or PSY 240, NRS 105, 105LC, 105LS.

**Corequisite(s) or Prerequisite(s):** BIO 127IN or FSN 127, WRT 102.

**Corequisite(s):** NRS 201, and 203.

*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 cr. hrs. 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. Includes further development of 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. Also includes the application of nursing theory in the clinical setting while caring for adults with complex health alterations.

**Prerequisite(s):** BIO 127IN or FSN 127IN, NRS 201, 201LC, 203, and WRT 102.

**Corequisite(s):** NRS 202CA, and 202CB.

*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 cr. hrs. 10.5 periods (10.5 lab)

This is the Clinical Lab Part A portion of NRS 202.

**Prerequisite(s):** BIO 127IN or FSN 127IN, NRS 201, 201LC, WRT 102.

**Corequisite(s):** NRS 202 and 202CB.

*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 202CB Nursing Process IV Clinical Lab - B**

2.5 cr. hrs. 7.5 periods (7.5 lab)

This is the Clinical Lab Part B portion of NRS 202.

**Prerequisite(s):** BIO 127IN or FSN 127IN, NRS 201, 201LC, 203, and WRT 102.

**Corequisite(s):** NRS 202, and 202CA.

*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 203 Trends and Issues in Nursing**

1 cr. hrs. 1 periods (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):** BIO 127IN or FSN 127IN, NRS 201, 201LC, WRT 102.

**Corequisite(s):** NRS 201, and 201LC.

*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 277

### NRA 101 Nursing Assistant

2 cr. hrs. 2 periods (2 lec.)

Introduction to nursing assisting. Includes body systems and common diseases, basic nursing assisting skills, providing client care, providing restorative care, providing long-term care, home health care, and certification requirements.

**Prerequisite(s):** Within the last two years: REA 091 with a C or better or a score of 85 or higher on the Compass Reading Assessment test.

**Corequisite(s):** NRA 101LC, NRA 101LS

*Information: Students must obtain consent from the Nursing Department before enrolling in this course.*

Offered: Fall, Spring.

### NRA 101LC Nursing Assistant Clinical

1 cr. hrs. 3 periods (3 lab)

Clinical Lab for NRA 101.

**Prerequisite(s):** Within the last two years: REA 091 with a C or better or a score of 85 or higher on the Compass Reading Assessment test.

**Corequisite(s):** NRA 101, NRA 101LS

Offered: Fall, Spring.

### NRA 101LS Nursing Assistant Skills

1 cr. hrs. 3 periods (3 lab)

Skills Lab for NRA 101.

**Prerequisite(s):** Within the last two years: REA 091 with a C or better or a score of 85 or higher on the Compass Reading Assessment test.

**Corequisite(s):** NRA 101, NRA 101LC

Offered: Fall, Spring.

### NRA 102 Patient Care Technician

1 cr. hrs. 1 periods (1 lec.)

Introduction to the role of the patient care technician. Includes legal and ethical considerations, infection control, principles of asepsis during dressing changes and catheterizations, recording an electrocardiogram, proper procedure of a venipuncture, enteral feedings, and communication and interpersonal skills. Prerequisite(s): Within the last two years: REA 091 with a C or better or a score of 85 or higher on the Compass Reading Assessment test.

**Corequisite(s):** NRA 102LC, NRA 102LS

*Information: Students must obtain consent from the Nursing Department before enrolling in this course. You must be a Certified Nursing Assistant or have successfully completed NRA 101 within the last two years to enroll in this course.*

Offered: Fall, Spring.

### NRA 102LC Patient Care Technician Clinical

.67 cr. hrs. 2 periods (2 lab)

Clinical Lab for NRA 102. Prerequisite(s): Within the last two years: REA 091 with a C or better or a score of 85 or higher on the Compass Reading Assessment test.

**Corequisite(s):** NRA 102, NRA 102LS

*Information: Students must obtain consent from the Nursing Department before enrolling in this course. You must be a Certified Nursing Assistant or have successfully completed NRA 101/101LC/101LS within the last two years to enroll in this course.*

Offered: Fall, Spring.

### NRA 102LS Patient Care Technician Skills

.33 cr. hrs. 1 periods (1 lab)

Skills lab for NRA 102. Prerequisite(s): Within the last two years: REA 091 with a C or better or a score of 85 or higher on the Compass Reading Assessment test.

**Corequisite(s):** NRA 102, NRA 102LC

*Information: Students must obtain consent from the Nursing Department before enrolling in this course. You must be a Certified Nursing Assistant or have successfully completed NRA 101/101LC/101LS within the last two years to enroll in this course.*

Offered: Fall, Spring.

## Office and Administrative Professions

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### OAP 111 Computer Keyboarding and Document Production

3 cr. hrs. 5 periods (2 lec., 3 lab)

Development of keyboarding skills to include mastery of alphabet, numeric, and symbol keyboards. Includes drills to build speed and accuracy skills with document processing of business correspondence. Also includes letters, reports, tables, resumes, language arts, and word processing commands.

*Information:* OAP 111A, 111B, and 111C together constitute OAP 111.

Offered: Fall, Spring.

### OAP 111A Keyboarding for Office Technology: Basic

1 cr. hrs. 1.7 periods (.7 lec., 1 lab)

Development of basic keyboarding skills. Includes the mastery of alphabet, numeric, and symbol keyboards.

*Information:* OAP 111A, 111B, and 111C together constitute OAP 111.

Offered: Fall, Spring.

### OAP 111B Keyboarding for Office Technology: Skill Building

1 cr. hrs. 1.7 periods (.7 lec., 1 lab)

Continuation of OAP 111A. Skills to build speed and accuracy on the computer keyboard. Includes keyboarding drills.

**Prerequisite(s):** OAP 111A or a score of 30 or better on the OAP 111A assessment test.

*Information:* OAP 111A, 111B, and 111C together constitute OAP 111.

Offered: May not be offered this year, check class schedule.

### OAP 111C Keyboarding for Office Technology: Document Processing

1 cr. hrs. 1.6 periods (.6 lec., 1 lab)

Continuation of OAP 111B. Document processing of business correspondence. Includes letters, reports, tables, resumes, language arts, and word processing commands.

**Prerequisite(s):** OAP 111B or a score of 45 or better on the OAP 111B assessment test.

*Information:* OAP 111A, 111B, and 111C together constitute OAP 111.

Offered: May not be offered this year, check class schedule.

### OAP 114 Computer Keyboarding: Skill Building

3 cr. hrs. 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: May not be offered this year, check class schedule.

### OAP 123 Professional Development for Administrative Support

3 cr. hrs. 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: May not be offered this year, check class schedule.

### OAP 132 Records Management: Filing Systems

3 cr. hrs. 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: May not be offered this year, check class schedule.

### OAP 151 Business English

3 cr. hrs. 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 171 Office Procedures**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Functions and procedures used in a wide range of office activities. Includes visitors and clients, office functions, document production, communication skills, office duties and tasks, travel arrangements, meetings, conferences, professional attitudes and image, and job evaluation.

**Prerequisite(s):** OAP 111.

Offered: May not be offered this year, check class schedule.

**OAP 199 Co-op: Office and Administrative Professions**

1 cr. hrs. 1 periods (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.

**OAP 199WK Co-op Work: Office and Administrative Professions**

1-8 cr. hrs. 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.

**OAP 224 Machine Transcription**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**OAP 251 Business Communications**

3 cr. hrs. 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 263 Medical Terminology for Disease Pathology**

3 cr. hrs. 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 266 Medical Transcription III**

3 cr. hrs. 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: May not be offered this year, check class schedule.

## Optical Science

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### OPS 201 Geometrical and Instrumental Optics I

3 cr. hrs. 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: May not be offered this year, check class schedule.

### OPS 201LB Geometrical and Instrumental Optics I Laboratory

1 cr. hrs. 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: May not be offered this year, check class schedule.

### OPS 202 Geometrical and Instrumental Optics II

3 cr. hrs. 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: May not be offered this year, check class schedule.

### OPS 202LB Geometrical and Instrumental Optics II Laboratory

1 cr. hrs. 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: May not be offered this year, check class schedule.

## Paralegal

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### PAR 101 Introduction to Paralegal Careers

3 cr. hrs. 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 cr. hrs. 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, WRT 101 or concurrent enrollment, and REA 112 or a reading assessment score of 95 or higher on the college reading assessment.

Offered: Fall, Spring.

**PAR 103 Legal Research**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Concepts and procedures of wills, trusts and estate planning for paralegals. Includes Arizona statutes and rules, probate and non-probate property, testate or intestate succession, will drafting and execution, will-related documents and advance directives, trusts, estate administration and related legal actions.

**Prerequisite(s):** PAR 101.

*Information: Prerequisite(s) 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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: Prerequisite(s) 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 cr. hrs. 1 periods (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.*

*Information: 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 cr. hrs. 1 periods (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.*

*Information: Prerequisites may be waived if employed in a legal-related field; see a PAR advisor or course instructor.*

Offered: Summer.

**PAR 210C Administrative Law: Social Security**

1 cr. hrs. 1 periods (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.*

*Information: 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 cr. hrs. 1 periods (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.*

*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 211 Legal Writing**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 public or private corporation, changes in corporate structure, and the role of the paralegal in corporate law.

**Prerequisite(s):** PAR 101.

*Information: Prerequisite(s) 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: Spring.

**PAR 217 Real Estate Legal Procedures**

3 cr. hrs. 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 and 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 for prerequisite information.*

Offered: Fall, Spring.

**PAR 290 Paralegal Internship**

4 cr. hrs. 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.*

*Information: Designed for students in their final semester of course work in the Paralegal Program.*

*Information: 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.*

*Information: Application and acceptance required.*

Offered: Fall, Spring.

## Pharmacy Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**PHT 150 Basic Science Concepts for Pharmacy Technology**

2 cr. hrs. 2 periods (2 lec.)

An introductory course to provide appropriate background and/or refresher for students enrolled in the PHT program. Includes basic concepts of chemistry (general, organic, biochemistry) with elements of biology/physiology.

Offered: May not be offered this year, check class schedule.

**PHT 170 Introduction to Pharmacy Technology**

2 cr. hrs. 2 periods (2 lec.)

An overview of the history, structure, operation, and function of the pharmacy, and the roles of the pharmacist and pharmacy support personnel. Includes: medical terminology, emphasizing common medical roots, prefixes, and suffixes; pharmaceutical abbreviations; and dosage forms and routes of administration. Also includes: information and reference resources; an introduction to third-party payment systems, HMO's, Medicare, and Medicaid; and contemporary issues, including legal and ethical aspects and future concepts in pharmacy.

Offered: Fall, Spring, Summer.

**PHT 171IN Pharmaceutical Calculations**

4 cr. hrs. 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, Summer.

**PHT 172 Drug Therapy I**

4 cr. hrs. 4 periods (4 lec.)

Overview of the relationship between the central nervous system (CNS), 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, Summer.

**PHT 174IN Pharmacy Operations**

3 cr. hrs. 5 periods (2 lec., 3 lab)

An integrated course combining lecture and laboratory exercise in practical, technical, and legal aspects of drug management; distribution (dispensing); and storage in outpatient (retail), inpatient (hospital), and nursing home settings. Includes pharmacy equipment and devices, materials, non-sterile dosage forms, and inventory control. Also includes small or large scale compounding, packaging and quality control; practical aspects of recordkeeping, and insurance issues relevant to the daily pharmacy operations.

**Prerequisite(s):** PHT 171 or concurrent enrollment.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring.

**PHT 178IN Computer Applications for Pharmacy**

3 cr. hrs. 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 180IN Sterile Products**

4 cr. hrs. 6 periods (3 lec., 3 lab)

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, basics of microbiology, antiseptics 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.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring.

**PHT 181 Interprofessional Relations in Pharmacy**

3 cr. hrs. 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: Fall, Spring.

**PHT 182 Drug Therapy II**

4 cr. hrs. 4 periods (4 lec.)

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 172.

Offered: Fall, Spring, Summer.

**PHT 187 Pharmacy Law and Ethics**

3 cr. hrs. 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.

**Prerequisite(s):** PHT 170 or concurrent enrollment.

Offered: Fall, Spring, Summer.

**PHT 190LB Pharmacy Technician Internship**

4 cr. hrs. 16 periods (16 lab)

On-site training in outpatient and inpatient pharmacy services under direct supervision of designated pharmacist.

*Information:* Consent of program coordinator is required before enrolling in this course.

Offered: Fall, Spring.

**PHT 197 Clinical Seminar**

2 cr. hrs. 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.

*Information:* Consent of program coordinator is required before enrolling in this course.

Offered: Fall, Spring.

## Philosophy

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**PHI 101 Introduction to Philosophy SUN# PHI 1101**

3 cr. hrs. 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 SUN# PHI 1103**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Introduction to the metaphysics and epistemology of the cognitive and material domains of Western philosophy. Includes philosophic method, distinctions, God, mind, and matter in ancient philosophy, medieval philosophy, modern philosophy, and contemporary philosophy and physics.

Offered: Fall, Spring.

**PHI 123 Philosophical Foundations of Science**

3 cr. hrs. 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: Fall.

**PHI 130 Introductory Studies in Ethics and Social Philosophy SUN# PHI 1105**

3 cr. hrs. 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 cr. hrs. 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.*

*Information: Same as REL 140.*

Offered: Fall, Spring.

## Phlebotomy

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**PHB 160 Foundations of Phlebotomy**

3 cr. hrs. 3 periods (3 lec.)

Overview of the role of phlebotomy in the healthcare profession. Includes the role of the phlebotomist within the culture of healthcare, conventions of laboratory organization and structure, the organization and purposes of laboratory departments, and the services a laboratory provides as an essential key to diagnosis. Also includes medical vocabulary, laboratory terminology, and basic anatomy and physiology with a focus on the circulatory system.

Offered: Fall, Spring and Summer.

**PHB 162 Safety Standards in Phlebotomy**

3 cr. hrs. 3 periods (3 lec.)

Study of phlebotomy safety practices and infection control in a laboratory setting. Includes quality controls, procedural controls, processing requirements, and transportation procedures. Also includes patient education, related legal guidelines, OSHA standards, and proper equipment operation.

**Corequisite(s):** PHB 164, PHB 166LB

Offered: Fall, Spring and Summer.

**PHB 164 Professional Practices in Phlebotomy**

3 cr. hrs. 3 periods (3 lec.)

A survey of professional practices in phlebotomy, including values, ethical behavior in the workplace, and workers' rights and responsibilities. Includes stress management, development of positive personal communication skills, and concepts of teamwork. Also includes OSHA and other regulatory requirements.

**Corequisite(s):** PHB 162, PHB 166LB

Offered: Fall, Spring and Summer.

**PHB 166LB Phlebotomy Laboratory Practice**

2 cr. hrs. 6 periods (6 lab)

Laboratory practice performing phlebotomy and capillary collections, including proper order of draw, labeling, and specimen handling. Includes study of basic storage, transportation, and processing. Also includes proper laboratory conduct and safety.

**Corequisite(s):** PHB 162, PHB 164

Offered: Fall, Spring and Summer.

**PHB 190LC Clinical Internship in Phlebotomy**

1-3 cr. hrs. 5-15 periods (5-15 lab)

Capstone experience for phlebotomy students. Includes an externship in the field where students practice the skills and knowledge they gain during training, such as single and multi-draw venipuncture, capillary draws, storage and transportation of specimens, testing and processing specimens, legal and ethical behaviors and documentation, and professional conduct.

**Prerequisite(s):** PHB 160, 162, 164 and 166LB.

*Information: Credit hours will vary depending on length of time needed for student to obtain required experience for certification.*

Offered: Fall, Spring and Summer.

## Physics

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### PHY 121 Introductory Physics I

4 cr. hrs. 4 periods (4 lec.)

Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes the nature of physics, linear motion and kinematics, dynamics, work and energy, linear momentum, rotational motion, heat, states of matter, and waves and sound.

**Prerequisite(s):** Placement into College Algebra (MAT 151) or higher.

**Corequisite(s):** PHY 121LB

Offered: Fall, Spring, Summer.

### PHY 121IN Introductory Physics I SUN# PHY 1111

5 cr. hrs. 7 periods (4 lec., 3 lab)

Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes the nature of physics, linear motion and kinematics, dynamics, work and energy, linear momentum, rotational motion, heat, states of matter, and waves and sound.

**Prerequisite(s):** Placement into College Algebra (MAT 151) or higher.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring, Summer.

### PHY 121LB Introductory Physics I Lab

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of PHY 121.

**Prerequisite(s):** Placement into College Algebra (MAT 151) or higher.

**Corequisite(s):** PHY 121

Offered: Fall, Spring, Summer.

### PHY 122 Introductory Physics II

4 cr. hrs. 4 periods (4 lec.)

Continuation of PHY 121/121LB or 121IN. Includes light, electricity, magnetism and electromagnetism, relativity, atomic physics, quantum physics, wave mechanics, and nuclear physics.

**Prerequisite(s):** PHY 121/121LB or 121IN.

**Corequisite(s):** PHY 122LB

Offered: Fall, Spring, Summer.

### PHY 122IN Introductory Physics II SUN# PHY 1112

5 cr. hrs. 7 periods (4 lec., 3 lab)

Continuation of PHY 121/121LB or 121IN. Includes light, electricity, magnetism and electromagnetism, relativity, atomic physics, quantum physics, wave mechanics, and nuclear physics.

**Prerequisite(s):** PHY 121/121LB or 121IN.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring, Summer.

### PHY 122LB Introductory Physics II Lab

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of PHY 122.

**Prerequisite(s):** PHY 121/121LB or 121IN.

**Corequisite(s):** PHY 122

Offered: Fall, Spring, Summer.

### PHY 195 Introduction to Research in Physics

4 cr. hrs. 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, Summer.

**PHY 196 Independent Studies in Physics**

1-4 cr. hrs. 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.*

*Information: May be taken two times for a maximum of eight credit hours.*

Offered: Fall, Spring, Summer.

**PHY 210 Introductory Mechanics**

4 cr. hrs. 4 periods (4 lec.)

Calculus-based introduction to mechanics for physics, engineering, and mathematics majors. Includes nature of physics, linear motion and kinematics, dynamics, work and energy, linear momentum, and rotational motion.

**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 SUN# PHY 1121**

5 cr. hrs. 7 periods (4 lec., 3 lab)

Calculus-based introduction to mechanics for physics, and mathematics majors. Includes nature of physics, linear motion and kinematics, dynamics, work and energy, linear momentum, and rotational motion. Also includes in-class exercises, outside observation projects, and independent studies.

**Prerequisite(s):** MAT 220.

*Information: High school physics is required before enrolling in this course.*

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring.

**PHY 210LB Introductory Mechanics Lab**

1 cr. hrs. 3 periods (3 lab)

Laboratory for PHY 210. Includes in-class exercises, outside observation projects, and independent studies. Emphasizes hands-on group and individual experiences to enrich understanding of PHY 210 lecture material.

**Corequisite(s):** PHY 210

*Information: High school physics is required before enrolling in this course.*

Offered: Fall, Spring.

**PHY 216 Introductory Electricity and Magnetism**

4 cr. hrs. 4 periods (4 lec.)

Calculus-based introduction to electricity and magnetism for physics, mathematics, and engineering majors. Includes electric charge and Coulomb's law, the electric field, Gauss' law, electric potential, capacitors and dielectrics, current and resistance, the magnetic field, Ampere's law and Biot-Savart law, and Faraday's law of induction. Also includes magnetic properties of matter, inductance, alternating current, Maxwell's equations, and electromagnetic waves.

**Prerequisite(s):** MAT 231 and PHY 210/210LB or 210IN.

**Corequisite(s):** PHY 216LB

Offered: Fall, Spring.

**PHY 216IN Introductory Electricity and Magnetism SUN# PHY 1131**

5 cr. hrs. 7 periods (4 lec., 3 lab)

Calculus-based introduction to electricity and magnetism for physics, mathematics, and engineering majors. Includes electric charge and Coulomb's law, the electric field, Gauss' law, electric potential, capacitors and dielectrics, current and resistance, the magnetic field, Ampere's law and Biot-Savart law, and Faraday's law of induction. Also includes magnetic properties of matter, inductance, alternating current, Maxwell's equations, and electromagnetic waves. Also includes in-class exercises, outside observation projects, and independent studies.

**Prerequisite(s):** MAT 231 and PHY 210/210LB or 210IN.

*Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.*

Offered: Fall, Spring.

**PHY 216LB Introductory Electricity and Magnetism Lab**

1 cr. hrs. 3 periods (3 lab)

Laboratory for PHY 216. Includes in-class exercises, outside observation projects, and independent studies. Emphasizes hands-on group and individual experiences to enrich understanding of PHY 216 lecture material.

**Prerequisite(s):** MAT 231 and PHY 210/210LB or 210IN.

**Corequisite(s):** PHY 216

Offered: Fall, Spring.

**PHY 221 Introduction to Waves and Heat**

3 cr. hrs. 3 periods (3 lec.)

Calculus-based introduction to waves and heat for physics, mathematics, and engineering majors. Includes fluid statics and dynamics, temperature, heat and thermodynamics, kinetic theory, thermodynamics and entropy, oscillations and simple harmonic motion, and wave motion. Also includes electromagnetic waves and the propagation of light, diffraction and interference, reflection and refraction at plane surfaces, and spherical mirrors and lenses.

**Prerequisite(s):** MAT 231 and PHY 210/210LB or 210IN.

**Corequisite(s):** PHY 221LB

Offered: Fall, Spring.

**PHY 221LB Introduction to Waves and Heat Lab**

1 cr. hrs. 3 periods (3 lab)

Laboratory for PHY 221. Includes in-class exercises, outside observation projects, and independent studies. Emphasizes hands-on group and individual experiences to enrich understanding of PHY 221 lecture material.

**Prerequisite(s):** MAT 231 and PHY 210/210LB or 210IN.

**Corequisite(s):** PHY 221

Offered: Fall, Spring.

**PHY 230 Introduction to Modern Physics**

3 cr. hrs. 3 periods (3 lec.)

Calculus-based introduction to modern physics from the theory of relativity to the origins of quantum mechanics. Includes the classical and special theory of relativity, relativistic kinematics, relativistic dynamics, the quantization of energy, particles and waves, the atom and early quantum theory, the Schrodinger wave equation, and nuclear, and particle physics.

**Prerequisite(s):** PHY 210 and 216, or PHY 221 and MAT 231.

Offered: Fall, Spring.

**PHY 295LB Independent Research in Physics**

1-4 cr. hrs. 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.*

*Information: May be taken three times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

## Political Science

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**POS 100 Introduction to Politics**

3 cr. hrs. 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.

**POS 196 Independent Study in Political Science**

2-4 cr. hrs. 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.*

*Information: May be taken two times for a maximum of eight credit hours.*

Offered: May not be offered this year, check class schedule.

**POS 201 American National Government and Politics SUN# POS 1110**

3 cr. hrs. 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 SUN# POS 1120**

3 cr. hrs. 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, Summer.

**POS 203 Introduction to Political Ideas**

3 cr. hrs. 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 SUN# POS 2204**

3 cr. hrs. 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: Spring.

**POS 210 National and State Constitutions**

3 cr. hrs. 3 periods (3 lec.)

Principles and procedures of national and state constitutions. Includes major 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 cr. hrs. 1 periods (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.

**POS 231 American State and Local Governments and Politics SUN# POS 1130**

3 cr. hrs. 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: Spring.

**POS 232 The Politics and History of Immigration**

3 cr. hrs. 3 periods (3 lec.)

Examines the politics of immigration in the United States and the phenomenon of emigration in a global context. Includes analyses of the history of immigration as a result of the country's political economy and its evolution and the role of immigration in the socio-political and economic development of the nation.

*Information: Same as HIS 232.*

Offered: Fall.

**POS 240 Understanding Terrorism**

3 cr. hrs. 3 periods (3 lec.)

Analysis of terrorism as an international phenomenon. Includes terrorism definitions and perspectives, 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: May not be offered this year, check class schedule.

**POS 290 Political Science Internship**

3 cr. hrs. 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:* May take course a maximum of three times for a total of nine credit hours.

Offered: Fall, Spring, Summer.

## Portuguese

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**POR 101 Elementary Portuguese I**

4 cr. hrs. 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 cr. hrs. 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.

## Professional Flight Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**PFT 101 Stage One: Ground School**

4 cr. hrs. 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: May not be offered this year, check class schedule.

**PFT 204 Stage Four: Commercial Pilot (Instrument) Ground School**

4 cr. hrs. 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 is required before enrolling in this course.

Offered: Spring.

**PFT 230 Flight Instructor: Fundamentals of Instruction**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**PFT 231 Flight Instructor: Airplane Ground School**

5 cr. hrs. 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: May not be offered this year, check class schedule.

## Psychology

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**PSY 100 Psychology I**

6 cr. hrs. 6 periods (6 lec.)

Information: PSY 100A and 100B together constitute PSY 100.

Offered: May not be offered this year, check class schedule. .

**PSY 100A Psychology I**

3 cr. hrs. 3 periods (3 lec.)

Survey of psychology including history, perspectives, and methods; development; intelligence, thinking, and language; personality; psychopathology; psychotherapy; and social cognition and behavior.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

Offered: May not be offered this year, check class schedule.

**PSY 100B Psychology II**

3 cr. hrs. 3 periods (3 lec.)

Survey of psychology including history, perspectives, and methods; structure and functions of the nervous and endocrine systems; perception; learning; motivation and emotion; personality; and stress and health.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

Information: The content of PSY 100A and 100B together constitute the content of PSY 101.

Offered: May not be offered this year, check class schedule.

**PSY 101 Introduction to Psychology SUN# PSY 1101**

4 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

Information: Content is a combination of elements of PSY 100A and 100B.

Offered: Fall, Spring, Summer.

**PSY 132 Psychology and Culture**

3 cr. hrs. 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.

**Recommendation:** Completion of PSY 100A or 101 before enrolling in this class.

Offered: Fall, Spring, Summer.

**PSY 210 Introduction to Biopsychology**

3 cr. hrs. 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.

*Information: Prerequisite(s) may be waived with consent of instructor before enrolling in the class.*

Offered: Spring.

**PSY 214 Abnormal Psychology**

3 cr. hrs. 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.

**Prerequisite(s):** PSY 100A or 101.

*Information: Prerequisite(s) may be waived with consent of instructor before enrolling in this class.*

Offered: Fall, Spring, Summer.

**PSY 215 Human Sexuality**

3 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

**Recommendation:** Completion of one of the following before enrolling in this course: PSY 100A, PSY 100B, PSY 101, or SOC 101.

*Information: Same as SOC 215.*

Offered: Fall, Spring, Summer.

**PSY 216 Psychology of Gender**

3 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

**Recommendation:** Completion of PSY 100A and 100B, or PSY 101 before enrolling in this course.

Offered: Fall, Spring.

**PSY 218 Health Psychology**

3 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

**Recommendation:** Completion of PSY 100A or 100B or PSY 101 before enrolling in this course.

Offered: Fall, Spring.

**PSY 220 The Psychology of Death and Loss**

3 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

**Recommendation:** Completion of PSY 100A or 100B or 101 before enrolling in this course.

Offered: Fall.



**PSY 224 Investigating Paranormal Psychology**

3 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

**Recommendation:** Completion of PSY 100A or 101 before enrolling in this class.

Offered: Fall.

**PSY 230 Psychological Measurements and Statistics**

3 cr. hrs. 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.

**Prerequisite(s):** PSY 100A or 101, and completion of MAT 122 or equivalent with a C or better.

*Information: Prerequisite(s) may be waived with consent of instructor before enrolling in the class.*

Offered: Fall, Spring, Summer.

**PSY 240 Developmental Psychology**

3 cr. hrs. 3 periods (3 lec.)

Human development from conception through adulthood. Includes physical, cognitive, emotional and social development and potentials at various ages. Also includes research methods used in developmental psychology.

**Prerequisite(s):** PSY 100A and 100B, or 101.

*Information: Prerequisite(s) may be waived with consent of instructor before enrolling in this class.*

Offered: Fall, Spring, Summer.

**PSY 250 Introduction to Social Psychology**

3 cr. hrs. 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.

**Prerequisite(s):** PSY 100A or 101.

*Information: Prerequisite(s) may be waived with consent of instructor before enrolling in this class.*

Offered: Fall.

**PSY 254 Psychology of Love and Compassion**

3 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

**Recommendation:** Completion of PSY 100A or 100B or PSY 101.

Offered: Fall, Spring.

**PSY 265 Normal Personality**

3 cr. hrs. 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.

**Prerequisite(s):** PSY 100A or 101.

*Information: Prerequisite(s) may be waived with consent of instructor before enrolling in this class.*

Offered: Fall, Spring.

**PSY 270 Meditation**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**PSY 289 Psychology Research Methods**

4 cr. hrs. 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.

**Prerequisite(s):** PSY 100A and 100B, or PSY 101; and completion of PSY 230 and WRT 101 with a grade of C or better.

**Recommendation:** Designed for students planning to major or minor in psychology.

*Information:* Prerequisite(s) may be waived with consent of instructor before enrolling in this class.

Offered: Fall, Spring.

## Public Administration

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**PAD 105 Introduction to Public Administration**

3 cr. hrs. 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.

## Public Works Supervision

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**PWS 101 Introduction to Public Works**

3 cr. hrs. 3 periods (3 lec.)

Overview of duties and responsibilities of the public works department. Include American roads and highways, concrete and asphalt, soils and surface drainage, beautification, street sweeping and refuse disposal, traffic control and street striping, weed control, sewer maintenance and storm drains, staff supervision, and management responsibilities.

Offered: May not be offered this year, check class schedule.

**PWS 201 Public Works Supervision**

3 cr. hrs. 3 periods (3 lec.)

Preparation for supervision of public works projects. Includes history of public works, worker values, team development, the supervisor's role, procedures for projects in different settings, and the use of mapping. Also includes related construction materials and plans, estimating materials and costs, laws, regulations, and standards, site preparation, construction and inspection procedures, and a capstone project.

Offered: May not be offered this year, check class schedule.

## Radiologic Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**RAD 170 Medical Imaging Fundamentals**

2 cr. hrs. 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:* Consent of program faculty is required before enrolling in this course.

*Information:* This course is open only to those students who have been admitted to the RAD program and who have attended the program orientation.

Offered: Summer.

**RAD 170LB Medical Imaging Fundamentals Lab**

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of RAD 170.

**Corequisite(s):** RAD 170

Offered: Summer.

**RAD 171 Radiographic Positioning I**

3 cr. hrs. 3 periods (3 lec.)

Overview of radiographic procedures. Includes radiographic positions of the abdomen, chest, upper extremities, shoulder girdle, and lower extremities. Also includes standard terms, positioning considerations for routine and special radiographic procedures, image critique, patient safety, assessment, and pertinent pathology.

**Prerequisite(s):** RAD 170/170LB.

**Corequisite(s):** RAD 171LB, RAD 172, RAD 172LB, RAD 173LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Fall.

**RAD 171LB Radiographic Positioning I Lab**

1.5 cr. hrs. 4.5 periods (4.5 lab)

This is the lab portion of RAD 171.

**Corequisite(s):** RAD 171, RAD 172, RAD 172LB, RAD 173LC

Offered: Fall.

**RAD 172 Medical Imaging Technology I**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the principles of x-ray production. Includes radiographic imaging orientation, matter and the atom, mass and energy, basic electricity, formulation of x-ray techniques and technique chart, and x-ray tubes. Also includes diagnostic x-ray systems, as low as reasonably achievable (ALARA) guidelines, and kilovoltage, milliamperage, and milliamperage second.

**Prerequisite(s):** RAD 170/170LB.

**Corequisite(s):** RAD 171, RAD 171LB, RAD 172LB, RAD 173LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Fall.

**RAD 172LB Medical Imaging Technology I Lab**

.5 cr. hrs. 1.5 periods (1.5 lab)

This is the lab portion of RAD 172.

**Prerequisite(s):** RAD 170/170LB.

**Corequisite(s):** RAD 171, RAD 171LB, RAD 172, RAD 173LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Fall.

**RAD 173LC Clinical Education I**

6 cr. hrs. 24 periods (24 lab)

Introduction to the first clinical practicum. Includes clinical site orientation, basic operation of radiographic equipment, patient care, exam protocols and review of department policies. Also includes upper and lower extremities, chest, and abdomen radiographic exams.

**Prerequisite(s):** RAD 170/170LB.

**Corequisite(s):** RAD 171, RAD 171LB, RAD 172, RAD 172LB

*Information: Consent of program faculty is required before enrolling in this course.*

*Information: Competency-based assignments, concepts of patient-centered clinical practice and professional development shall be discussed, examined, performed and evaluated under the supervision of a certified Radiologic Technologist. The clinical practicum incorporates critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiographic procedures.*

Offered: Fall.

**RAD 174 Radiographic Positioning II**

3 cr. hrs. 3 periods (3 lec.)

Continuation of RAD 171. Includes routine and special positioning of the 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 171/171LB, 172/172LB, 173LC.

**Corequisite(s):** RAD 174LB, RAD 175, RAD 175LB, RAD 176LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Spring.

**RAD 174LB Radiographic Positioning II Lab**

1.5 cr. hrs. 4.5 periods (4.5 lab)

This is the lab portion of RAD 174.

**Corequisite(s):** RAD 174, RAD 175, RAD 175LB, RAD 176LC

Offered: Spring.

**RAD 175 Medical Imaging Technology II**

3 cr. hrs. 3 periods (3 lec.)

Continuation of RAD 172/172LB. Includes cones, diaphragms, and collimators; grids, magnetism and electromagnetism, x-ray generators, technical factor calculations, automatic exposure control, and x-ray detection devices. Also includes equipment accuracy regulations, digital imaging, and mobile radiography and fluoroscopy.

**Prerequisite(s):** RAD 171/171LB, 172/172LB, 173LC.

**Corequisite(s):** RAD 174, RAD 174LB, RAD 175LB, RAD 176LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Spring.

**RAD 175LB Medical Imaging Technology II Lab**

.5 cr. hrs. 1.5 periods (1.5 lab)

This is the lab portion of RAD 175.

**Prerequisite(s):** RAD 171/171LB, 172/172LB, 173LC.

**Corequisite(s):** RAD 174, RAD 174LB, RAD 175, RAD 176LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Spring.

**RAD 176LC Clinical Education II**

6 cr. hrs. 24 periods (24 lab)

Continuation of RAD 173LC. Includes routine and special radiographic procedures, trauma and mobile radiography, osseous pathology, and pediatric radiography.

**Prerequisite(s):** RAD 171/171LB, 172/172LB, 173LC.

**Corequisite(s):** RAD 174, RAD 174LB, RAD 175, RAD 175LB

*Information: Consent of program faculty is required before enrolling in this course.*

*Information: Competency-based assignments, concepts of patient-centered clinical practice and professional development shall be discussed, examined, performed and evaluated under the supervision of a certified Radiologic Technologist. The clinical practicum incorporates critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiographic procedures.*

Offered: Spring.

**RAD 177LC Clinical Education III**

6 cr. hrs. 24 periods (24 lab)

Continuation of RAD 176LC. Includes routine and special radiographic procedures, mobile radiography, emergency department procedures, and observation and assisting in fluoroscopic procedures.

**Prerequisite(s):** RAD 174/174LB, 175/175LB, 176LC.

*Information: Consent of program faculty is required before enrolling in this course.*

*Information: Competency-based assigned, concepts of patient-centered clinical practice and professional development shall be discussed, examined, performed and evaluated under the supervision of a certified Radiologic Technologist. The clinical practicum incorporates critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiographic procedures.*

Offered: Summer.

**RAD 181 Radiographic Positioning III**

3 cr. hrs. 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 174/174LB, 177LC.

**Corequisite(s):** RAD 181LB, RAD 182, RAD 182LB, RAD 183LC

*Information: Consent of program coordinator is required before enrolling in this course.*

Offered: Fall.

**RAD 181LB Radiographic Positioning III Lab**

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of RAD 181.

**Corequisite(s):** RAD 181, RAD 182, RAD 182LB, RAD 183LC

Offered: Fall.

**RAD 182 Medical Imaging Technology III**

3 cr. hrs. 3 periods (3 lec.)

Continuation of RAD 175. Includes tomography, image intensification, digital fluoroscopy, special imaging procedures, conventional film processing and advanced imaging modalities.

**Prerequisite(s):** RAD 175/175LB, 177LC.

**Corequisite(s):** RAD 181, RAD 181LB, RAD 182LB, RAD 183LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Fall.

**RAD 182LB Medical Imaging Technology III Lab**

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of RAD 182.

**Corequisite(s):** RAD 181, RAD 181LB, RAD 182, RAD 183LC

Offered: Fall.

**RAD 183LC Clinical Education IV**

4 cr. hrs. 16 periods (16 lab)

Continuation of RAD 177LC. Includes diagnostic and fluoroscopic equipment and procedures, contrast media policies and protocols, intravenous administration, and gastrointestinal, genitourinary, and biliary exams.

**Prerequisite(s):** RAD 177LC.

**Corequisite(s):** RAD 181, RAD 181LB, RAD 182, RAD 182LB

*Information: Consent of program faculty is required before enrolling in this course.*

*Information: Competency-based assignments, concepts of patient-centered clinical practice and professional development shall be discussed, examined, performed and evaluated under the supervision of a certified Radiologic Technologist. The clinical practicum incorporates critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiographic procedures.*

Offered: Fall.

**RAD 184 Radiographic Positioning IV**

3 cr. hrs. 3 periods (3 lec.)

Continuation of RAD 181. Includes routine skull, sinuses, facial bone radiographs and radiation biology.

**Prerequisite(s):** RAD 181/181LB, 182/182LB, 183LC.

**Corequisite(s):** RAD 184LB, RAD 185, RAD 186LC

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Spring.

**RAD 184LB Radiographic Positioning IV Lab**

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of RAD 184.

**Corequisite(s):** RAD 184, RAD 185, RAD 186LC

Offered: Spring.

**RAD 185 Clinical Seminar**

1.5 cr. hrs. 1.5 periods (1.5 lec.)

This is a capstone course. Includes review of radiographic procedures, image acquisition and evaluation, patient care, equipment operation, and quality control, radiation protection.

**Prerequisite(s):** RAD 181/181LB, 182/182LB, 183LC.

**Corequisite(s):** RAD 184, RAD 184LB, RAD 186LC

*Information: Consent of program faculty is required before enrolling in this course.*

*Information: This is a capstone course which includes instruction in applying application to the American Registry of Radiologic Technology (AART) and the Medical Radiologic Technology Board of Examiners (MRTBE). The course includes both a written mock registry and a computerized exam.*

Offered: Spring.

**RAD 186LC Clinical Education V**

6 cr. hrs. 24 periods (24 lab)

Continuation of RAD 183LC. Includes skull and facial bones radiographic procedures, and advanced modality rotations.

**Prerequisite(s):** RAD 181/181LB, 182/182LB, 183LC.

**Corequisite(s):** RAD 184, RAD 184LB, RAD 185

*Information: Consent of program faculty is required before enrolling in this course.*

*Information: Competency-based assignments, concepts of patient-centered clinical practice and professional development shall be discussed, examined, performed and evaluated under the supervision of a certified Radiologic Technologist. The clinical practicum incorporated critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiographic procedures.*

Offered: Spring.

## Reading

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**REA 071 Reading Fundamentals**

4 cr. hrs. 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: May not be offered this year, check class schedule.

**REA 075 Spelling**

2 cr. hrs. 2 periods (2 lec.)

Development of strategies for improving spelling. Includes basics of the English spelling system and spelling rules.

*Information: May be taken two times for a maximum of four credit hours.*

Offered: May not be offered this year, check class schedule.

**REA 081 Reading Improvement I**

4 cr. hrs. 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.*

*Information: May be taken two times for a maximum of eight credit hours.*

Offered: Fall, Spring, Summer.

**REA 091 Reading Improvement II**

4 cr. hrs. 4 periods (4 lec.)

Development of 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 cr. hrs. 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):** REA 091 with a C or better or required score on Reading assessment test. 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 112HP Critical Reading for Health Professions**

4 cr. hrs. 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):** REA 091 with a grade of C or better or satisfactory score on Reading assessment. WRT 070 with a C or better or placement into WRT 100 or higher.

**Recommendation:** Recommended for students pursuing an associate's degree in Nursing, Radiologic Technology, Respiratory Therapy or Dental Hygiene Education.

*Information:* Students must obtain consent of an advisor, counselor, or reading instructor before enrolling in this course. Same as REA 112.

Offered: Fall, Spring.

## Religion

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**REL 119 Judaism, Christianity, and Islam**

3 cr. hrs. 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, and Islam.

Offered: Fall, Spring.

**REL 130 Asian Religions**

3 cr. hrs. 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 cr. hrs. 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.

*Information:* Same as PHI 140.

Offered: Fall, Spring, Summer.

**REL 200 Religion in Popular Culture**

3 cr. hrs. 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, such as movies, television, music, news, advertising, and recreation.

Offered: Fall, Spring.

**REL 220 Old Testament**

3 cr. hrs. 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 cr. hrs. 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 234 Islam**

3 cr. hrs. 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, and historical and political development of Islam from Muhammad to the present.

Offered: May not be offered this year, check class schedule.

**REL 273 Judaism**

3 cr. hrs. 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.

## Reserve Officers Training Corps — ROTC – Air Force

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**MLA 100 Foundations of Air Force I**

2 cr. hrs. 2 periods (2 lec.)

First Year General Military Course (GMC) Survey of the doctrine, mission, and organization of the United States Air Force (USAF); U.S. strategic offensive and defensive forces; U.S. general purpose and aerospace support forces.

*Information: United States Air Force Reserve Officers' Training Corps (AFROTC) Cadets must attend a Leadership Lab on Tuesday and Thursday from 6:45 A.M. to 7:45 A.M.*

*Information: Course offered in cooperation with the University of Arizona.*

Offered: May not be offered this year, check class schedule.

**MLA 101 Foundation of the Air Force II**

2 cr. hrs. 2 periods (2 lec.)

Continuation of MLA 100. First Year General Military Course (GMC) Survey of the doctrine, mission, and organization of the United States Air Force (USAF); U.S. strategic offensive and defensive forces; U.S. general purpose and aerospace support forces.

*Information: United States Air Force Reserve Officers' Training Corps (AFROTC) Cadets must attend a Leadership Lab on Tuesday and Thursday from 6:45 A.M. to 7:45 A.M.*

*Information: Course offered in cooperation with the University of Arizona.*

Offered: May not be offered this year, check class schedule.

**MLA 110 Military Aerospace Physical Training Program**

1 cr. hrs. 2 periods (2 lab)

Introduction to the Air Force physical training program. Includes attention to the group's physical ability, emphasis on individual physical abilities, and gradual increase to a higher level of physical fitness. Also includes establishment of goals and standards for conduct in physical training, and prepares the student to pass the Air Force Physical Fitness Assessment (AF PFA).

*Information: Initial dates for the AF PFA will be determined the first week of class and identified in the cadet wing calendar.*

Offered: Spring.

**MLA 200 Airpower History I**

2 cr. hrs. 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 Officers' Training Corps (AFROTC) Cadets must attend a Leadership Lab on Tuesday and Thursday from 6:45 A.M. to 7:45 A.M.*

*Information: Course offered in cooperation with the University of Arizona.*

Offered: May not be offered this year, check class schedule.



**MLA 201 Airpower History II**

2 cr. hrs. 2 periods (2 lec.)

Continuation of MLA 200. 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 Reserve Officers' Training Corps (AFROTC) Cadets must attend a Leadership Lab on Tuesday and Thursday from 6:45 A.M. to 7:45 A.M.*

*Information: Course offered in cooperation with the University of Arizona.*

*Offered: May not be offered this year, check class schedule.*

## Reserve Officers Training Corps — ROTC – Army

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**MLS 100 Introduction to Military Skills I**

3 cr. hrs. 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.*

*Information: Course offered in cooperation with the University of Arizona.*

*Offered: May not be offered this year, check class schedule.*

**MLS 101 Introduction to Military Skills II**

3 cr. hrs. 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, AZ.*

*Information: Course offered in cooperation with the University of Arizona.*

*Offered: May not be offered this year, check class schedule.*

**MLS 102 Army Physical Training**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Introduction to the importance of physical fitness and its life long benefits. Includes physical conditioning, establishing goals and setting standards for physical training.

*Offered: May not be offered this year, check class schedule.*

**MLS 103 Ranger Challenge**

1 cr. hrs. 2 periods (2 lab)

Introduction to the basic military skills needed to complete the ranger challenge. Includes individual fitness training, team building skills, self discipline, and conditioning.

*Offered: May not be offered this year, check class schedule.*

**MLS 200 Army Leadership Dynamics I**

3 cr. hrs. 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, AZ.*

*Information: Course offered in cooperation with the University of Arizona.*

*Offered: May not be offered this year, check class schedule.*

**MLS 201 Army Leadership Dynamics II**

3 cr. hrs. 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: May not be offered this year, check class schedule.*

**MLS 296 Independent Study in Military Science**

3 cr. hrs. 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.

*Information: Course offered in cooperation with the University of Arizona.*

*Information: See an instructor before enrolling in this course.*

*Offered: May not be offered this year, check class schedule.*

## Reserve Officers Training Corps — ROTC – Navy

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**NSP 100 Naval Laboratory I**

1 cr. hrs. 2 periods (2 lab)

Overview of the Naval service. Includes drill and ceremonies, physical fitness, cruise preparation, sail training, safety awareness, personal finances. Also includes 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.*

*Information: Course offered in cooperation with the University of Arizona.*

*Offered: May not be offered this year, check class schedule.*

**NSP 101 Introduction to Naval Science**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the naval service through a historical overview for naval midshipmen. Includes general discussions of the broad concepts of seapower and studies in the organizational structure of the U.S. Navy and its major components.

*Information: Acceptance into the Navy Reserve Officers Training Corps (ROTC) program at the University of Arizona is required before enrolling in this course or permission of instructor.*

*Information: Course offered in cooperation with the University of Arizona.*

*Offered: May not be offered this year, check class schedule.*

**NSP 102 Naval Ship Systems I**

3 cr. hrs. 3 periods (3 lec.)

Overview of naval ship systems engineering. Includes the fundamentals of ship construction, stability, damage control and repair, basic thermodynamics, and steam and nuclear propulsion systems.

*Information: Course offered in cooperation with the University of Arizona.*

*Offered: May not be offered this year, check class schedule.*

**NSP 103 Naval Laboratory I (Marine Option)**

2 cr. hrs. 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 Reserve Officers Training Corps (ROTC) program (Marine Option) at the University of Arizona is required before enrolling in this course or permission of instructor.*

*Information: May be taken 11 times for a maximum of 22 credits.*

*Offered: May not be offered this year, check class schedule.*

**NSP 202 Sea Power and Maritime Affairs**

3 cr. hrs. 3 periods (3 lec.)

United States Naval history from the American Revolution to the present. Includes the general concept of sea power, the role of various warfare components of the Navy in supporting its mission, the implementation of sea power as an instrument of national policy, and a comparative study of U.S. and Soviet naval strategies.

*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 277

## RTH 110 Introduction to Respiratory Care

4 cr. hrs. 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, demonstration of basic life support, principles of infection control, ethical and legal implications of practice, cultural sensitivity in health care, and disaster preparedness.

**Corequisite(s):** RTH 112, RTH 121, RTH 121LB, RTH 125LC

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall.

## RTH 112 Respiratory Physiology

4 cr. hrs. 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 125LC

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall

## RTH 121 Basic Therapeutics

4 cr. hrs. 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 125LC

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall

## RTH 121LB Basic Therapeutics Lab

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of RTH 121.

**Corequisite(s):** RTH 110, RTH 112, RTH 121, RTH 125LC

*Information: Students must be admitted to the Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall.

## RTH 123 Basic Assessment and Monitoring

3 cr. hrs. 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, 121/121LB, 125LC.

**Corequisite(s):** RTH 123LB, RTH 124, RTH 135LC, RTH 162, RTH 246

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 123LB Basic Assessment and Monitoring Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of RTH 123.

**Prerequisite(s):** RTH 110, 112, 121/121LB, 125LC.

**Corequisite(s):** RTH 123, RTH 124, RTH 135LC, RTH 162, RTH 246

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 124 Pharmacology for Respiratory Care**

3 cr. hrs. 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, 121/121LB, 125LC.

**Corequisite(s):** RTH 123, RTH 123LB, RTH 135LC, RTH 162, RTH 246

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment*

Offered: Spring.

**RTH 125LC Clinical Procedures I**

1 cr. hrs. 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.

**Corequisite(s):** RTH 110, RTH 112, RTH 121, RTH 121LB

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall.

**RTH 135LC Clinical Procedures II**

3 cr. hrs. 12 periods (12 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 110, 112, 121/121LB, 125LC.

**Corequisite(s):** RTH 123, RTH 123LB, RTH 124, RTH 162, RTH 246

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 162 Principles of Mechanical Ventilation**

3 cr. hrs. 3 periods (3 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, physical principles of positive pressure ventilation, physical assessment of the critically ill patient, interpreting basic waveform graphics, and respiratory monitoring in the intensive care unit.

**Prerequisite(s):** RTH 110, 112, 121/121LB, 125LC.

**Corequisite(s):** RTH 123, RTH 123LB, RTH 124, RTH 135LC, RTH 246

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 241 Critical Care Therapeutics**

4 cr. hrs. 4 periods (4 lec.)

Study of critical care principles and procedures in the adult patient. Includes airway management, mechanical ventilation waveform graphics, selected adult mechanical ventilators and troubleshooting, care of the mechanically ventilated patient, alternative modes of mechanical ventilation, and home mechanical ventilation.

**Prerequisite(s):** RTH 123/123LB, 124, 135LC, 162, 246

**Corequisite(s):** RTH 241LB, RTH 243, RTH 243LB, RTH 245LC

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course.*

Offered: Fall.

**RTH 241LB Critical Care Therapeutics Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of RTH 241.

**Prerequisite(s):** RTH 123/123LB, 124, 135LC, 162, 246.

**Corequisite(s):** RTH 241, RTH 243, RTH 243LB, RTH 245LC

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course.*

Offered: Fall

**RTH 243 Advanced Assessment and Monitoring**

4 cr. hrs. 4 periods (4 lec.)

Study of the assessment of the critical respiratory patient. Includes cardiac output assessment, invasive hemodynamic monitoring, assessment of sleep-related breathing disorders, nutritional assessment and the respiratory system, advanced cardiac arrhythmia interpretation, cardiac stress testing, bronchoscopy, and advanced pulmonary function testing.

**Prerequisite(s):** RTH 123/123LB, 124, 135LC, 162, 246.

**Corequisite(s):** RTH 241, RTH 241LB, RTH 243LB, RTH 245LC

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall.

**RTH 243LB Advanced Assessment and Monitoring Lab**

1 cr. hrs. 3 periods (3 lab)

This is the lab portion of RTH 243.

**Prerequisite(s):** RTH 123/123LB, 124, 135LC, 162, 246.

**Corequisite(s):** RTH 241, RTH 241LB, RTH 243, RTH 245LC

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall.

**RTH 245LC Clinical Procedures III**

4 cr. hrs. 16 periods (16 lab)

Continuation of RTH 135LC. Includes clinical assessment of the critical care patient, advanced airway management, advanced respiratory assessment monitoring, adult mechanical ventilation, transport of the critically ill patient, and 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 123/123LB, 124, 135LC, 162, 246.

**Corequisite(s):** RTH 241, RTH 241LB, RTH 243, RTH 243LB

*Information: Students must be admitted to the Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Fall.

**RTH 246 Cardiorespiratory Disorders I**

3 cr. hrs. 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, and various important cardiopulmonary topics.

**Prerequisite(s):** RTH 110, 112, 121/121LB, 125LC.

**Corequisite(s):** RTH 123, RTH 123LB, RTH 124, RTH 135LC, RTH 162

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 251 Specialty Therapeutics**

4 cr. hrs. 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, pulmonary rehabilitation, and advanced cardiorespiratory care therapies.

**Prerequisite(s):** RTH 241/241LB, 243/243LB, 245LC.

**Corequisite(s):** RTH 251LB, RTH 255LC, RTH 256, RTH 257LB

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 251LB Specialty Therapeutics Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of RTH 251.

**Prerequisite(s):** RTH 241/241LB, 243/243LB, 245LC.

**Corequisite(s):** RTH 251, RTH 255LC, RTH 256, RTH 257LB

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent of the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 255LC Clinical Procedures IV**

4 cr. hrs. 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, and case study presentation preparation.

**Prerequisite(s):** RTH 241/241LB, 243/243LB, 245LC.

**Corequisite(s):** RTH 251, RTH 251LB, RTH 256, RTH 257LB

*Information: Students must be admitted to the PCC Respiratory program and obtain consent of the Respiratory Care department before enrolling in this course.*

Offered: Spring.

**RTH 256 Cardiorespiratory Disorders II**

3 cr. hrs. 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: Students must be admitted to the PCC Respiratory program and obtain consent of the Respiratory Care department before enrolling in this course.*

Offered: Spring.

**RTH 257LB Clinical Applications and Professional Development**

1 cr. hrs. 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 241/241LB, 243/243LB, 245LC.

**Corequisite(s):** RTH 251, RTH 251LB, RTH 255LC, RTH 256

*Information: Students must be admitted to the PCC Respiratory Care program and obtain consent from the Respiratory Care department before enrolling in this course. See a faculty advisor prior to enrollment.*

Offered: Spring.

**RTH 295 Independent Research in Respiratory Therapy**

.5-4 cr. hrs. 1.5-12 periods (1.5-12 lab)

Experience in scientific laboratory or field research in respiratory therapy.

*Information: This course is open only to those students who have been admitted to the RTH program.*

*Information: Consent of instructor is required before enrolling in this course.*

*Information: May be taken three times for a maximum of twelve credit hours.*

Offered: Fall, Spring.

## Russian

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**RUS 101 Elementary Russian I SUN# RUS 1101**

4 cr. hrs. 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 SUN# RUS 1102**

4 cr. hrs. 4 periods (4 lec.)

Continuation of RUS 101. Includes grammar and vocabulary, housing and furniture, family and professions, shopping, money and measurements, and biographies of people.

**Prerequisite(s):** RUS 101.

*Information: Prerequisite(s) may be waived with one year of high school Russian. See an instructor.*

Offered: Fall, Spring.

**RUS 201 Intermediate Russian I SUN# RUS 2201**

4 cr. hrs. 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: Prerequisite(s) may be waived with two years of high school Russian. See an instructor.*

Offered: Fall, Spring.

**RUS 202 Intermediate Russian II SUN# RUS 2202**

4 cr. hrs. 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: Fall, Spring.

## Science for Teachers

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### SCT 280 Process of Science for Elementary Educators I

3 cr. hrs. 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, AST 102/102LB or 102IN; CHM 121/121LB or 121IN, CHM 130/130LB or 130IN, CHM 151/151LB or 151IN; GEO 101, GEO 102; GLG 102IN; PHY 115/115LB, PHY 121/121LB or 121IN.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 280A, 280B, and 280C together constitute SCT 280.*

Offered: Fall.

### SCT 280A Process of Science for Elementary Educators I - Module A

1 cr. hrs. 1 periods (1 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.

**Prerequisite(s):** BIO 105, MAT 142, and one of the following: AST 101/101LB or 101IN, AST 102/102LB or 102IN; CHM 121/121LB or 121IN; CHM 130/130LB or 130IN, CHM 151/151LB or 151IN; GEO 101, GEO 102; GLG 102; PHY 115/115LB, PHY 121/121LB or 121IN.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 280A, 280B, and 280C together constitute SCT 280.*

Offered: May not be offered this year, check class schedule.

### SCT 280B Process of Science for Elementary Educators I - Module B

1 cr. hrs. 1 periods (1 lec.)

Interdisciplinary, hands-on, inquiry-based science for elementary educators. Includes matter and energy, and the universe.

**Prerequisite(s):** SCT 280A.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 280A, 280B, and 280C together constitute SCT 280.*

Offered: May not be offered this year, check class schedule.

### SCT 280C Process of Science for Elementary Educators I - Module C

1 cr. hrs. 1 periods (1 lec.)

Interdisciplinary, hands-on, inquiry-based science for elementary educators. Includes the structure of life and organisms in their environment.

**Prerequisite(s):** SCT 280B.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 280A, 280B, and 280C together constitute SCT 280.*

Offered: May not be offered this year, check class schedule.



**SCT 281 Process of Science for Elementary Educators II**

3 cr. hrs. 3 periods (3 lec.)

Continuation of SCT 280. Includes integrating additional science in the elementary school classroom, human health, human society, applying science and technology, patterns and relationships, historical perspectives, and critical thinking processes.

**Prerequisite(s):** SCT 280 or 280C.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 281A, 281B, and 281C together constitute SCT 281.*

Offered: Spring.

**SCT 281A Process of Science for Elementary Educators II - Module A**

1 cr. hrs. 1 periods (1 lec.)

Continuation of SCT 280. Includes integrating additional science in the elementary school classroom, human health and human society.

**Prerequisite(s):** SCT 280 or 280C.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 281A, 281B, and 281C together constitute SCT 281.*

Offered: May not be offered this year, check class schedule.

**SCT 281B Process of Science for Elementary Educators II - Module B**

1 cr. hrs. 1 periods (1 lec.)

Continuation of SCT 281A. Includes integrating additional science in the elementary school classroom, human society, and applying science and technology.

**Prerequisite(s):** SCT 281A.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 281A, 281B, and 281C together constitute SCT 281.*

Offered: May not be offered this year, check class schedule.

**SCT 281C Process of Science for Elementary Educators II - Module C**

1 cr. hrs. 1 periods (1 lec.)

Continuation of SCT 281B. Includes integrating additional science in the elementary school classroom, historical perspectives, and critical thinking processes.

**Prerequisite(s):** SCT 281B.

*Information: Designed for elementary education majors.*

*Information: Prerequisite(s) may be waived with Elementary or Secondary Teacher Certification.*

*Information: Does not meet AGEC requirements for science.*

*Information: SCT 281A, 281B, and 281C together constitute SCT 281.*

Offered: May not be offered this year, check class schedule.

## Sign Language

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**SLG 050 Conversational Sign Language I**

3 cr. hrs. 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 cr. hrs. 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: Spring.

**SLG 101 American Sign Language I**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to American Sign Language (ASL). Includes: parameters; syntax; sentence types; facial expressions and body language; pronominalization; nouns and verbs; modals; sign space; time line and time modulations; classifiers; pluralizations; and deaf history and culture. Also includes: fingerspelling numbers; lexicalized fingerspelling; conceptual accuracy; sign modulation; conversational regulators; basic compounds and contractions; and existence of regional dialects/sign and language variations. Because language and culture are inextricably linked, this course will also demonstrate how ASL conveys the values, beliefs, customs, and history of American Deaf culture.

*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.*

*Information: This class is conducted primarily without voice.*

Offered: Fall, Spring, Summer.

**SLG 102 American Sign Language II**

4 cr. hrs. 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; 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. Because language and culture are inextricably linked, this course will also demonstrate how ASL conveys the values, beliefs, customs, and history of American Deaf culture.

**Prerequisite(s):** SLG 101 with a grade of C or better.

*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.*

*Information: This class is conducted primarily without voice.*

Offered: Fall, Spring, Summer.

**SLG 201 American Sign Language III**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of SLG 102. Includes sentence order, modulation/inflection, prosody, sign space usage, conceptual accuracy, sign vocabulary, and deaf culture and history. Because language and culture are inextricably linked, this course will also demonstrate how ASL conveys the values, beliefs, customs, and history of American Deaf culture.

**Prerequisite(s):** SLG 102 with a grade of C or better.

*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.*

*Information: This class is conducted primarily without voice.*

Offered: Fall, Spring.

**SLG 202 American Sign Language IV**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Continuation of SLG 201. Includes: use of sign space; conceptual accuracy; directionality; mimetic description; dialects; numerical applications; American Sign Language (ASL) expansions; English words with no direct ASL translation; English passive voice to ASL active voice; rendering ASL and English passages; current cultural issues; and the field of interpreting. Because language and culture are inextricably linked, this course will also demonstrate how ASL conveys the values, beliefs, customs, and history of American Deaf culture.

**Prerequisite(s):** SLG 201 with a grade of C or better.

*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.*

*Information: This class is conducted primarily without voice.*

Offered: Fall, Spring.

**SLG 296 Independent Study in Sign Language**

1-3 cr. hrs. 3-9 periods (3-9 lab)

Exploration of special interest areas in sign language and deaf cultures. Includes extensive practice of sign language skills and in depth study of deaf cultures involving literature, grammar and special projects under the supervision of the instructor.

**Prerequisite(s):** SLG 102.

*Information: Student must have consent of instructor.*

*Information: Course content and performance objectives will be determined by conference between student and instructional faculty.*

**Offered:** May not be offered this year, check class schedule.

## Social Services

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**SSE 110 Introduction to Social Welfare**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the social welfare system. Includes historical context, approaches to service delivery, social welfare as an institution, development of the social work profession, practice methods, professional values and code of ethics, private and public funding sources, bureaucratic structures, community resources, and welfare myths and realities. Also includes social problems and special populations, cultural awareness and competency, use of technology, professional organizations, and public policy and future trends.

**Offered:** Fall, Spring, Summer.

**SSE 111 Group Work**

3 cr. hrs. 3 periods (3 lec.)

Examination of group dynamics using experiential learning. Includes goals, communication patterns, leadership, power and influence, decision-making, conflict resolution, controversy, creativity, problem solving, diversity, and personal growth within groups. Also includes application of concepts through observation, group exercises, and case studies.

**Offered:** Fall, Spring.

**SSE 121 Study of Substance Abuse**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the study of substance and drug abuse in the United States. Includes history of drug use and historical development of prohibitions, classification and effects of drugs, diagnosis and assessment of abuse and dependence, theories of addiction and treatment strategies, and funding sources for treatment programs. Also includes cross-cultural perspectives; co-occurring disorders and integrated treatment modalities; treatment interventions; special populations; ethical issues; and education, resources, and prevention.

**Offered:** Fall, Spring.

**SSE 123 Substance Abuse Prevention**

3 cr. hrs. 3 periods (3 lec.)

Comprehensive review of approaches to substance abuse prevention. Includes principles of prevention, risk factors, protective factors, resilience, and systems-oriented and client-oriented prevention strategies. Also includes controversial prevention issues, client-oriented prevention programs and funding, special populations, prevention in the workplace, and program evaluation.

**Offered:** Spring.

**SSE 128 Introduction to Behavioral Health**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the behavioral health care system in southern Arizona. Includes providing excellent service, ethics and boundaries, engagement and clinical documentation, introduction to service planning and covered services, management of complex needs, and strength-based behavioral health general assessment training. Also includes demographic data set, court ordered treatment, covered services, behavioral health enhanced assessment training, and clinical training standardized self-study modules.

**Offered:** May not be offered this year, check class schedule.

**SSE 140 Domestic Violence: Causes and Cures**

3 cr. hrs. 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: Spring.

**SSE 146 Child Abuse Intervention and Protection**

3 cr. hrs. 3 periods (3 lec.)

Overview of the scope and nature of child abuse and neglect. Includes child abuse from historical and cultural perspectives, context of the family and child development, analyzing dynamics, identifying symptoms and assessing risks, short-term and long-term effects of child abuse, intervention and the roles of professionals, and prevention management of child abuse cases.

Offered: Fall.

**SSE 154 Nutrition**

3 cr. hrs. 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 cr. hrs. 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 normal developmental needs of children and adolescents, special needs of dependent, delinquent, challenged and special needs youth, and prevention in youth services with an emphasis on the role of diversity.

Offered: Fall.

**SSE 170 Community Health Advisor**

3 cr. hrs. 3 periods (3 lec.)

Preparation of Community Health Advisors for outreach disease prevention, advocacy, education, and referral services within prescribed communities. Includes national and local history of community health work programs, overview of the health services system, communication and relationship building skills, coping with stress, personal health, building self-esteem, and dealing with feelings. Also includes presentation skills, using support materials, interacting with other agencies within the community, managing home visits, dealing with challenging situations, professional issues, and empowering and mobilizing for action.

Offered: Fall, Spring.

**SSE 204 Counseling in a Multicultural Setting**

3 cr. hrs. 3 periods (3 lec.)

Concepts, techniques, and skills in values, perceptions, attitudes, and behaviors emphasizing intercultural communication patterns within a counseling setting. Includes culture and counseling, profiles of Americans, profiles of special populations, differences, cultural elements in counseling, dynamic factors, common terminology, disparities in treatment, counseling, and counseling theories.

**Recommendation:** Completion of SSE 110 before enrolling in this course. Those students pursuing the Behavioral Health Certificate are highly recommended to complete BHS 132 before enrolling in this course.

Offered: Fall.

**SSE 205 Case Report Writing**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the principles, concepts, techniques and necessary skills to create and maintain case report records. Includes case report writing, report content, ethical and legal issues, current trends in behavioral health case report writing, and cultural competence.

Offered: Fall.

**SSE 210 Community Organization and Development**

3 cr. hrs. 3 periods (3 lec.)

An examination, principles, and techniques of community organizing to effect change in America. Includes current conditions, theoretical frameworks, community change, overcoming resistance, professional practice and ethics, promoting neighborhood change, using information technology, planning for action, personal power, and people as a valuable resource. Also includes developing resources and funding, use of the media, community development, principles for effective leadership, strategies for institutional change, and government structure and legislative lobbying.

**Prerequisite(s):** SSE 110.

Offered: Fall, Spring.

**SSE 211 Group Technique Applications**

3 cr. hrs. 3 periods (3 lec.)

Application of advanced concepts in group dynamics. Includes skill development and preparation for group facilitation in the community through in-class experiential learning. Also includes community-group case studies, ethical standards, and multicultural issues.

**Prerequisite(s):** SSE 111.

Offered: Fall, Spring.

**SSE 220 Treatment of the Substance Abuser**

3 cr. hrs. 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, and 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, Legal and Ethical Aspects of Drug Use**

3 cr. hrs. 3 periods (3 lec.)

Overview of drug abuse and the law. Includes historical and legal overview, major drug legislation and court decisions; drugs, drug effects, drug classification, and the concept of addiction; nature, uses, legal status, and social and economic aspects of the major psychoactive drugs. Also includes attitudes toward drug use and the connection between drugs, crime, and gangs; implications of decriminalization or legalization of illicit drugs, international drug trafficking and its effect on U.S. policy and programs, law enforcement, and ethics and ethical practice.

**Prerequisite(s):** SSE 121.**Recommendation:** Completion of SSE 123 before enrolling in this course.

Offered: Fall.

**SSE 224 Substance Use/Abuse Among Diverse/Special Needs Populations**

3 cr. hrs. 3 periods (3 lec.)

Examination and focus on understanding racial and ethnic differences in the prevalence of substance abuse. Includes cultural and substance use and abuse, ethnic and racial groups, profiles of special populations, differences, cultural elements and relationships, dynamic factors, common terminology, counseling, and counseling theories.

**Recommendation:** Completion of SSE 121 is recommended before enrolling in this course.

Offered: Spring.

**SSE 242 Crisis Intervention, Theory and Techniques**

3 cr. hrs. 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 285.*Information: Prerequisite maybe waived with consent of instructor.*

Offered: Spring.

**SSE 260 Youth Services: Policy, Practice and Prevention**

3 cr. hrs. 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 281 Social Service Delivery Systems**

3 cr. hrs. 3 periods (3 lec.)

Study of the social service delivery system. Includes the profession of social work, social work roles, service delivery systems, special and diverse populations, and diversity issues related to service delivery.

**Prerequisite(s):** SSE 110.

*Information: Requires 40 hours of classroom-mediated community agency contact.*

Offered: Fall, Spring.

**SSE 285 Foundations of Social Work Practice**

3 cr. hrs. 3 periods (3 lec.)

Theoretical foundation and skill base for effective culturally competent communication and interviewing with individuals, families, small groups, and larger systems. Includes framework for multicultural understanding and social work practice, interpersonal communication in professional helping relationships, major helping and developmental theories, and personal and professional development.

**Prerequisite(s):** SSE 281 or concurrent enrollment.

Offered: Fall, Spring.

**SSE 289 Topics in Community Involvement**

1-6 cr. hrs. 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.*

*Information: Same as SOC 289.*

*Information: May be taken two times for a maximum of six credit hours.*

Offered: May not be offered this year, check class schedule.

**SSE 290 Youth Services Field Experience**

4 cr. hrs. 16 periods (1 lec., 15 lab)

Supervised placement in community youth serving agencies. Includes completion of written assignments, regular supervision services with agency supervisors, assistance with resume writing, orientation to agencies in the community, and evaluation of student performance.

**Prerequisite(s):** SSE 160, 285.

**Recommendation:** Consult instructor for alternative prerequisites.

*Information: May be taken two times for a maximum of eight credit hours. Consent of instructor is required before enrolling in this course. Students complete 225 clock hours of direct service at a youth serving organization during the semester.*

Offered: Fall, Spring.

**SSE 292 Social Services Field Experience**

4 cr. hrs. 16 periods (1 lec., 15 lab)

Supervised placement in community social services agencies. Includes completion of written assignments, regular supervision service with agency supervisors, assistance with resume writing, orientation to agencies in the community, and evaluation of student performance.

**Prerequisite(s):** SSE 285.

**Recommendation:** Consult instructor for alternative prerequisites.

*Information: May be taken two times for a maximum of eight credit hours. Consent of instructor is required before enrolling in this course. Students complete 225 clock hours of direct service at a social service organization during the semester.*

Offered: Fall, Spring.

**SSE 293 Community Health and Development Field Experience**

4 cr. hrs. 16 periods (1 lec., 15 lab)

Community health and development skills practiced and evaluated in community-based health, human service, education and community agencies and settings. Includes supervised placement in an appropriate social service agency or organization, supervisory services and site visits, orientation to community agencies and organizations, field experience evaluation, and classroom seminars.

**Prerequisite(s):** SSE 170.

*Information:* Students complete 225 clock hours of direct service at a community health and development organization during the semester.

Offered: Fall, Spring.

**SSE 296 Independent Study in Social Services**

1-3 cr. hrs. 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.

*Information:* May be taken three times for a maximum of nine credit hours.

Offered: May not be offered this year, check class schedule.

## Sociology

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**SOC 101 Introduction to Sociology SUN# SOC 1101**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the basic concepts of sociology, sociological analysis and research. Includes social structure, status, social group, social control, social stratification, social class, gender, race, sexuality, ethnicity, aging, learning and physical challenges, family, religion, education, government, health, technology, corporations, terrorism, environmental sustainability, social movements and social change, mass society, and postmodernity. Also includes globalization within and across contemporary societies and cultures.

Offered: Fall, Spring, Summer.

**SOC 109 Introduction to Global Studies**

3 cr. hrs. 3 periods (3 lec.)

Survey of modern globalization. Includes the study of dimensions of globalization, global organizations, global politics, cultural globalization, the global economy, global environmental independence, and global social movements and counter movements. Also includes global interactions and their current effects on the restructuring of cultural, political, and economic institutions worldwide.

*Information:* Same as ANT 109 and GLS 109.

Offered: May not be offered this year, check class schedule.

**SOC 110 Introduction to Cities and Global Society**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the study of the urban environment. Includes exploring the city, city form and city culture, urban diversity, and urban and global dilemmas and possible solutions. Also includes a special emphasis on understanding cities and the impact of globalization at community, national, and international levels.

Offered: May not be offered this year, check class schedule.

**SOC 120 Current Social Problems**

3 cr. hrs. 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 cr. hrs. 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.

**SOC 130 Social World of Drugs**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the social aspects of the 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 140 Sociology of Religion**

3 cr. hrs. 3 periods (3 lec.)

Sociological analysis of religion as a social institutional arena. Includes functional versus substantive definitions of religion, methodological stance sociologists take toward religion as an object of study, classical and contemporary theoretical perspectives on religion, major faith traditions, secularization versus fundamentalism, globalization and religion, new religious movements, religion and key social statuses, and religious diversity and change in the U.S.

Offered: May not be offered this year, check class schedule.

**SOC 166 Social Gerontology**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the social aspects of aging and the aged. Includes the concept of the life course, the demographics of a graying United States, myths and facts about aging, sociological theories on aging, historical and cross-cultural analyses of aging, age norms, family patterns in later life, retirement patterns, living environments in later life, the social meaning of death and dying, the economics of aging, the politics of aging, social services for older Americans and religion and aging.

Offered: Spring.

**SOC 201 Race, Ethnicity, Minority Groups and Social Justice SUN# SOC 2215**

3 cr. hrs. 3 periods (3 lec.)

Social processes involved in the construction of difference. Includes race, ethnicity, minority groups, nationality, and social justice. Also includes the analysis of social, political, cultural, religious, economic and historical formations with special reference to current global trends, social conflict, and change.

Offered: Fall, Spring.

**SOC 203 Sociology of Utopia**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**SOC 204 Gender Identities, Interactions and Relations**

3 cr. hrs. 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.

**SOC 215 Human Sexuality**

3 cr. hrs. 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.

**Prerequisite(s):** REA 091 with a C or better (or assessment into REA 112).

**Recommendation:** Completion of PSY 100A or 100B or 101 or SOC 101 before enrolling in this course.

**Information:** Same as PSY 215.

Offered: Fall, Spring, Summer.



**SOC 280 Sociology of Education**

3 cr. hrs. 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 Topics in Community Involvement**

3 cr. hrs. 3 periods (3 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.*

*Information: Same as SSE 289.*

*Information: May be taken two times for a maximum of 6 credits.*

Offered: May not be offered this year, check class schedule.

**SOC 296 Individual Studies in Sociology**

3 cr. hrs. 3 periods (3 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.*

*Information: May be taken two times for a maximum of six credit hours.*

Offered: May not be offered this year, check class schedule.

## Solar Technologies

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**SLR 100 Introduction to Photovoltaic Technology**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to photovoltaic (PV) technology. Includes the application of PV technology, basic concepts, safety basics, energy efficient appliances, solar energy fundamentals, solar cell materials, solar cell physics, and connecting solar panels in series and parallel. Also includes testing solar cells and modules, sunlight concentrators, photovoltaic system components, and system financial considerations.

Offered: May not be offered this year, check class schedule.

**SLR 101 Beginning Photovoltaic Installation**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to photovoltaic energy and photovoltaic (PV) system installation. Includes markets and applications, safety basics, electricity basics, energy efficient appliances, solar energy fundamentals, photovoltaic materials, module fundamentals, concentrators, system components, system sizing, electrical design, mechanical design, and performance analysis and troubleshooting.

*Information: This course specifically provides preparation for the North American Board of Certified Energy Practitioners (NABCEP) Photovoltaic Installer Certification exam.*

Offered: Fall.

**SLR 102 Advanced Photovoltaic Installation**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of SHC 101. Includes advanced photovoltaic (PV) energy and system installation training. Also includes safety basics, stand-alone PV system sizing, grid-tied system sizing, National Electric Code (NEC) compliant wire sizing, grounding of PV systems, site analysis and array mounting, and PV system commissioning, troubleshooting, maintenance and performance evaluation.

*Information: This course specifically provides preparation for the North American Board of Certified Energy Practitioners (NABCEP) Photovoltaic Installer Advanced Certification exam.*

Offered: Spring.

**SLR 103 Introduction to Batteries and Fuel Cells**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to the fundamentals of batteries and fuel cells. Includes history, basic structure and construction, theory of operation, and different types of commercially available batteries and fuel cells. Also includes the basic physics and chemistry related to the operation of these devices, and the electrical properties of the devices when connected in series and in parallel.

Offered: May not be offered this year, check class schedule.

**SLR 130 Solar Hot Water Systems**

4 cr. hrs. 6 periods (3 lec., 3 lab)

Introduction to solar thermal systems. Includes the types, maintenance, performance, controls, site selection considerations, performance estimating and testing. Also includes related mathematics, copper piping practices, soldering and brazing, basic heat transfer, and basic principles of hydronics.

**Prerequisite(s):** BCT 106, 111, 112, 113, 114, and 115.

Offered: Spring.

## Spanish

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**SPA 085 Introductory Spanish**

4 cr. hrs. 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 SUN# SPA 1101**

4 cr. hrs. 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 101HC Elementary Spanish I for Healthcare**

4 cr. hrs. 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.

**SPA 101LE Elementary Spanish I for Law Enforcement**

4 cr. hrs. 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.

**SPA 102 Elementary Spanish II SUN# SPA 1102**

4 cr. hrs. 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: Prerequisite(s) may be waived with one year of high school Spanish. See an instructor, advisor, or counselor.*

Offered: Fall, Spring, Summer.

**SPA 102HC Elementary Spanish II for Healthcare**

4 cr. hrs. 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.*

*Information: Prerequisite(s) may be waived with one year of high school Spanish. See an instructor, advisor, or counselor.*

Offered: Fall, Spring.

**SPA 102LE Elementary Spanish II for Law Enforcement**

4 cr. hrs. 4 periods (4 lec.)

Continuation of SPA 101LE. 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 law enforcement context.

**Prerequisite(s):** SPA 101.

*Information: Same as SPA 102. Emphasis on law-enforcement-related vocabulary.*

*Information: Prerequisite(s) may be waived with one year of high school Spanish. See an instructor, advisor, or counselor.*

Offered: Fall, Spring.

**SPA 103 Beginning Spanish for Spanish Speakers**

4 cr. hrs. 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.

*Information: Ability to speak basic Spanish is required.*

Offered: Fall, Spring.

**SPA 106 Beginning Conversation Spanish**

3 cr. hrs. 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, Spring.

**SPA 107 Intermediate Conversation Spanish**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**SPA 201 Intermediate Spanish I SUN# SPA 2201**

4 cr. hrs. 4 periods (4 lec.)

Continuation of SPA 102. Includes intermediate grammar structures and vocabulary contexts in oral and written forms and using a variety of materials in the target language and cultures to promote proficiency in reading, writing, speaking and listening.

**Prerequisite(s):** SPA 102.

Offered: Fall, Spring, Summer.

**SPA 202 Intermediate Spanish II SUN# SPA 2202**

4 cr. hrs. 4 periods (4 lec.)

Continuation of SPA 201. Includes intermediate grammar structures and vocabulary contexts in oral and written forms and use of a variety of materials in the target language and cultures to promote proficiency in reading, writing, speaking, and listening. Also includes reading selections from authentic media, advanced conversation and discussions, and compositions using intermediate grammar structures.

**Prerequisite(s):** SPA 201.

Offered: Fall, Spring, Summer.

**SPA 203 Writing and Oral Skills for Spanish Speakers**

4 cr. hrs. 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 Spanish**

4 cr. hrs. 4 periods (4 lec.)

Development of oral communicative techniques and critical thinking skills. Includes communicative skills, complex vocabulary utilization, grammatical structures, and cultural awareness.

**Recommendation:** Completion of one year of Spanish before enrolling in this course.

Offered: May not be offered this year, check class schedule.

**SPA 207 Latin America on Film**

4 cr. hrs. 4 periods (4 lec.)

Viewing and discussing Spanish language on films from regions such as Cuba, Caribbean, Central and South America, and Mexico. Includes communicative skills, complex vocabulary utilization, grammatical structures, cultural awareness, and Latin American cinema. Also includes the development of communicative techniques and critical thinking skills through film.

**Prerequisite(s):** SPA 202 or 206.

Offered: May not be offered this year, check class schedule.

**SPA 240 Grammar and Composition**

3 cr. hrs. 3 periods (3 lec.)

Development of advanced grammar and writing communicative skills. Includes grammar structures, factual, expository, and argumentative writing.

**Prerequisite(s):** SPA 202 or TRS 102.

Offered: May not be offered this year, check class schedule.

**SPA 250 Spanish Phonetics**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**SPA 251 Intermediate Spanish III**

3 cr. hrs. 3 periods (3 lec.)

Tools for thinking critically and analytically in Spanish. Includes writing proficiency, reading proficiency, and control of language through lexical and grammatical precision.

**Prerequisite(s):** SPA 202.

Offered: May not be offered this year, check class schedule.

**SPA 253 Intermediate Spanish for Spanish Speakers**

4 cr. hrs. 4 periods (4 lec.)

Intensive writing and 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 cr. hrs. 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.

*Information: Prerequisite(s) may be waived with ability to speak, read, and write Spanish.*

Offered: Fall, Spring.

**SPA 296 Independent Study in Spanish**

1-4 cr. hrs. 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.*

*Information: May be taken two times for a maximum of eight credit hours.*

*Offered: May not be offered this year, check class schedule.*

## Special Education

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**EDS 250 Issues in Special Education**

1 cr. hrs. 1 periods (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.*

*Offered: Summer.*

**EDS 251 Legal Issues in Special Education**

1 cr. hrs. 1 periods (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.*

*Offered: Summer.*

**EDS 252 Understanding Individuals with Disabilities Education Act**

1 cr. hrs. 1 periods (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.*

*Offered: Summer.*

**EDS 253 Development and Implementation of IEPs**

1 cr. hrs. 1 periods (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. Also 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.*

*Offered: Summer*

**EDS 254 Classroom Management for Special Education**

2 cr. hrs. 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.*

*Information: Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.*

*Information: This class requires a 10-hour special education practicum.*

*Offered: Spring.*

**EDS 255 Assistive Technology for Special Education Teachers**

3 cr. hrs. 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.*

*Information: Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.*

Offered: Fall.

**EDS 256 Survey of Special Education**

3 cr. hrs. 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.*

*Information: Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.*

Offered: Fall.

**EDS 257 Diagnosis Assessment of Students w/Mild-Moderate Disabilities**

3 cr. hrs. 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.*

*Information: Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.*

*Information: This class requires a 15-hour special education practicum.*

Offered: Fall.

**EDS 258A Foundations of Instruction Cross Categorical**

2 cr. hrs. 2 periods (2 lec.)

Foundations of instruction for designated disabilities, including mild to moderate mental retardation, learning disabilities, emotional disabilities, and physical and other health impairments. Includes assessment, instruction, and instructional design; establishment and maintenance of case records; use of assessment data to design goals and objectives; development of Individualized Education Plans (IEPs); Also includes communication and consultation with teachers, families, students, administrators, and agencies; directing and monitoring activities of Paraprofessionals, aids, volunteers, and peer tutors; and modification of curriculum and instruction to accommodate student needs.

*Information: Admission to the Post-Degree Teacher Certification Program or Education department permission is required before enrolling in this course.*

*Information: Requires a paid subscription to TaskStream electronic portfolio. Additional fees apply.*

Offered: Spring.

**EDS 259 Teaching Methods Cross-Categorical**

3 cr. hrs. 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 Individualized Education Program (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: Spring.

**EDS 260 Developmental Reading, Instruction, Assessment, Remediation**

3 cr. hrs. 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. Also 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: Post-Degree Teacher Certification Program approval is required before enrolling in this course. This class requires a 15-hour practicum and can be used to fulfill some elements of the Reading Endorsement. Please contact the Post-Degree Teacher Education office or contact the Arizona Department of Education Certification office for specific information. Requires a paid subscription to TaskStream electronic portfolio. Same as EDU260.*

Offered: Spring.

**EDS 290 Internship**

8 cr. hrs. 40 periods (40 lab)

Overview of the student teaching 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, 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.*

*Information: EDS 290A, 290B, 290C, and 290D together constitute EDS 290.*

Offered: Fall, Spring.

**EDS 290A Internship I**

2 cr. hrs. 10 periods (10 lab)

Overview of the student teaching 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, 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.*

*Information: EDS 290A, 290B, 290C, and 290D together constitute EDS 290.*

Offered: Fall, Spring.

**EDS 290B Internship III**

2 cr. hrs. 10 periods (10 lab)

Overview of the student teaching 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, 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.*

*Information: EDS 290A, 290B, 290C, and 290D together constitute EDS 290.*

Offered: Fall, Spring.

**EDS 290C Internship III**

2 cr. hrs. 10 periods (10 lab)

Overview of the student teaching 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, 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.*

*Information: EDS 290A, 290B, 290C, and 290D together constitute EDS 290.*

Offered: Fall, Spring.

**EDS 290D Internship IV**

2 cr. hrs. 10 periods (10 lab)

Overview of the student teaching 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, 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.*

*Information: EDS 290A, 290B, 290C, and 290D together constitute EDS 290.*

Offered: Fall, Spring.

## Speech Communication

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**SPE 102 Introduction to Speech Communication SUN# COM 1100**

3 cr. hrs. 3 periods (3 lec.)

Introduction to the function, basic concepts, and skills of oral communication in interpersonal and public address situations. Includes the communication process, interpersonal communication, public speaking, and group process.

Offered: Fall, Spring, Summer.

**SPE 110 Public Speaking**

3 cr. hrs. 3 periods (3 lec.)

Study and training in public speaking with emphasis on audience adaptation. Includes the responsibility of the public speaker and the listener, informative and persuasive speaking, audience analysis, organizing information, visual aids, delivery techniques, evaluating evidence, handling questions, and speech evaluation.

Offered: Fall, Spring, Summer.

**SPE 120 Business and Professional Communications**

3 cr. hrs. 3 periods (3 lec.)

Study and training in organizational communication within a multicultural/global environment. Includes communication in a multicultural/global business environment; interpersonal communication skills in a culturally diverse workforce; researching, organizing, and delivering informative, instructional, and persuasive presentations; interviewing techniques; group process in business; and listening techniques.

Offered: Fall, Spring, Summer.

**SPE 130 Small Group Discussion**

3 cr. hrs. 3 periods (3 lec.)

Study and training in group process. Includes the nature and functions of groups, preparation for group work, group communication process, problem solving and decision making, and observing and evaluating the group process.

Offered: May not be offered this year, check class schedule.

## Student Success

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**STU 100 College Study Skills**

1 cr. hrs. 1 periods (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.

*Information: STU 100A, 100B, 100C, and 100D together constitute STU 100.*

Offered: Fall, Spring, Summer.



**STU 100A College Study Skills: How to Study**

.25 cr. hrs. .25 periods (.25 lec.)

Concepts and application of successful study skills. 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 College Study Skills: Time Management**

.25 cr. hrs. .25 periods (.25 lec.)

Concepts and application of successful time management strategies. Includes factors affecting individual use of time, goal setting, and personal time management techniques.

*Information: STU 100A, 100B, 100C, and 100D together constitute STU 100.*

Offered: Fall, Spring.

**STU 100C College Study Skills: Note Taking Tips**

.25 cr. hrs. .25 periods (.25 lec.)

Concepts and application of successful note taking techniques. Includes factors affecting the note taking process, such as 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 cr. hrs. .25 periods (.25 lec.)

Strategies for a successful testing experience. Includes causes for test taking anxiety, techniques to relieve test anxiety, and test taking strategies.

*Information: STU 100A, 100B, 100C and 100D together constitute STU 100.*

Offered: Fall, Spring.

**STU 102 Personal Finance in College Decision Making**

1 cr. hrs. 1 periods (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: May not be offered this year, check class schedule.

**STU 105 Math Success Skills**

1 cr. hrs. 1 periods (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 cr. hrs. 1 periods (1 lec.)

Preparation of a plan for a successful transition to a university. Includes clarification of degree/major based on career and academic interests, introduction and awareness of transfer resources, financial resources and college payment plans, development of a personal education plan for transfer, and general transition planning.

**Prerequisite(s):** REA 081.

**Recommendation:** Concurrently enrolled or completion of REA 091 and WRT 100, and take this course before completing 30 college credits. Take this course prior to STU 210 - University Transfer.

Offered: Fall, Spring.

**STU 109 Making Career Choices**

2 cr. hrs. 2 periods (2 lec.)

Development of skills and knowledge necessary to make a career selection. Includes career exploration and self-assessments, choosing an occupational area or specific career, and researching chosen career. Also includes identification of program of study and degree, job seeking skills, and goal setting.

*Information: STU 109A and 109B together constitute STU 109.*

Offered: Fall, Spring.

**STU 109A Making Career Choices: Interests and Values**

1 cr. hrs. 1 periods (1 lec.)

Interests and values to make career choices. Includes values clarification, skill identification, interest and personality assessments, career research strategies.

*Information: STU 109A and 109B together constitute STU 109.*

Offered: Fall, Spring, Summer.

**STU 109B Career Choices: Goal Development**

1 cr. hrs. 1 periods (1 lec.)

Making Career Choices: Goal Development Provides resources for goal development. Includes an education and career plan, self-assessment inventory, adult career development, action steps for career goal achievement, and career decision making.

*Information: STU 109A and 109B together constitute STU 109.*

Offered: May not be offered this year, check class schedule.

**STU 112 Strategies for Taking Control of Your Future**

.25 cr. hrs. .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: Students cannot receive credit for both STU102 and STU112.*

Offered:

**STU 121 Adult College Re-entry Skills**

3 cr. hrs. 3 periods (3 lec.)

Designed for adult re-entry to assist in making a smooth transition into college. Includes: career exploration and employability skills; college success skills; college and community resources; and personal, academic and financial goals. Also includes confidence building, gender awareness, and communication in the workplace.

Offered: Fall, Spring.

**STU 130 Stress Management for Wellness**

3 cr. hrs. 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, stress management for college issues, mindfulness, and a healthy lifestyle.

Offered: Fall, Spring.

**STU 135 Stress Management**

1 cr. hrs. 1 periods (1 lec.)

Principles and techniques for managing stress and living a healthier life style. Includes factors that impact stress in daily life and the positive influence of wellness practices, such as observing healthy nutrition habits, maintaining physical fitness, and managing stressful situations.

Offered: Fall, Spring.

**STU 150 Becoming a Master Student**

3 cr. hrs. 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.

**STU 200 Becoming a Critical Thinker**

3 cr. hrs. 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, and critical thinking strategies.

**Recommendation:** Completion of REA 091 before enrolling in this course or concurrent enrollment.

Offered: Fall, Spring.

**STU 210 Transfer Strategies**

2 cr. hrs. 2 periods (2 lec.)

Transitioning to a college or university. Includes planning for successful transferring, community college/university resources, and transition procedures and policies. Also includes completing applications and participating in activities for transferring to a college or university of choice.

**Recommendation:** Consult with a counselor or advisor prior to enrolling in this course. Completion of STU 107, 109, or 109A is strongly recommended.

Offered: Fall, Spring.

**STU 230 Dynamics of Leadership**

3 cr. hrs. 3 periods (3 lec.)

Training in leadership philosophy and application. Includes the changing nature of leadership, vision and mission, strategic planning, team building and group dynamics, managing conflict, anticipating and responding to change, complex systems, multiculturalism ethics, power and privilege, self-assessment of leadership skills and characteristics, personal definition and philosophy, wellness and renewal, communication skills, presentation and facilitation skills, and designing and completing a leadership project.

Information: Same as MGT 230.

Offered: Fall, Spring.

**STU 240 Exploring Leadership through Community Engagement**

3 cr. hrs. 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:** Successful completion of REA 091 and STU 230, or other meaningful leadership experiences.

Information: Consent of the Instructor or Advisor is required before registering for 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. STU 240A, 240B, and 240C together constitute STU 240.

Offered: May not be offered this year, check class schedule.

**STU 240A Exploring Leadership through Community Engagement: Personal Engagement**

1 cr. hrs. 1 periods (1 lec.)

Leadership experience through supervised service learning and community involvement. Includes personal leadership attributes, personal vision, and leadership awareness. Also includes community activities, evaluation, and portfolio development.

**Recommendation:** Successful completion of REA 091 and STU 230, or other meaningful leadership experiences.

Information: Consent of the instructor or advisor is required before registering for this course.

Information: This course fulfills some of the requirements for the Pima Leadership Institute. See the course instructor for additional information.

Information: STU 240A, 240B, and 240C together constitute STU 240.

Offered: May not be offered this year, check class schedule.

**STU 240B Exploring Leadership through Community Engagement: Social Change**

1 cr. hrs. 1 periods (1 lec.)

Leadership experience through supervised service learning and community involvement. Includes relational and service models of leadership, community leadership models, community dynamics, and community activities. Also includes participation in a community and/or college service learning project.

**Recommendation:** Successful completion of REA 091 and STU 230, or other meaningful leadership experiences.

Information: Consent of the instructor or advisor is required before registering for this course.

Information: This course fulfills some of the requirements for the Pima Leadership Institute. See the course instructor for additional information.

Information: STU 240A, 240B, and 240C together constitute STU 240.

Offered: May not be offered this year, check class schedule.

**STU 240C Exploring Leadership through Community Engagement: Global Leadership**

1 cr. hrs. 1 periods (1 lec.)

Leadership experience through supervised service learning and community involvement. Includes personal leadership attributes, leadership awareness, community dynamics, community activities, and evaluation. Also includes participation in a community and/or college service learning project.

**Recommendation:** Successful completion of REA 091 and STU 230, or other meaningful leadership experiences.

*Information:* Consent of the instructor or advisor is required before registering for this course.

*Information:* This course fulfills some of the requirements for the Pima Leadership Institute. See the course instructor for additional information.

*Information:* STU 240A, 240B, and 240C together constitute STU 240.

Offered: May not be offered this year, check class schedule.

**STU 250 Transitional Resiliency**

3 cr. hrs. 3 periods (3 lec.)

A study of the current research on resiliency, learning, and leadership in an integrative manner that fosters individual leadership. Includes exploration of the physical, psychological, and social systems of resiliency, psychological principles applied to learning and instructional design, and analysis of readings addressing practical and theoretical leadership principles. A model of a whole task approach to blend objectives and learning concepts in various contexts will be utilized.

*Information:* This course is designed for students who are veterans of the military.

Offered: Fall, Spring.

## Surface Mining Technology

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**SMT 101 Mine Safety**

1 cr. hrs. 1 periods (1 lec.)

Introduction to mine safety for new miners. Includes the use and application of safety gear. Also includes safety procedures prescribed by the Mine Safety and Health Administration (MSHA) for new miners.

Offered: Contact department at 206-5098.

**SMT 102 Introduction to Hydraulics and Pneumatics**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Principles, components, symbols, and applications of hydraulic and pneumatic systems. Includes system development and troubleshooting; hydraulic and pneumatic components; and flow diagrams for particular applications. Also includes troubleshooting procedures for systems, system components, and assemblies.

Offered: Contact department at 206-5098.

**SMT 103 Basic Mine Welding**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Procedures and techniques used in arc and oxyacetylene mine welding. Includes surface health, safety, and environmental practices, welding terminology, and arc and oxyacetylene welding equipment. Also includes proper welding procedures for arc and oxyacetylene, arc and oxyacetylene steel welding, welding machines and polarities, filler metal identification, welding positions, and oxyacetylene cutting.

Offered: Contact department at 206-5098.

**SMT 104 Advanced Mine Welding and Fabrication**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Principles and techniques of steel layout and fabrication welding. Includes measurement, print reading review, layout tools, and layout techniques. Also includes hand-held power tool safety and use, large power tool safety and use, drawing interpretation, and welding projects.

**Prerequisite(s):** SMT 103.

Offered: Contact department at 206-5098.

**SMT 106 Basic Rigging for the Mines**

1 cr. hrs. 1 periods (1 lec.)

Rigging hardware used in mines and for surface mine equipment. Includes safety, rigging equipment, inspection, crane hand signals, estimating an object, and common rope knots. Also includes types of derricks and cranes, and proper equipment use.

Offered: Contact department at 206-5098.

**SMT 110 Diesel Engines**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Theory and operation of diesel combustion engines common to heavy equipment used in surface mining. Includes diagnosis, engine rebuilding, and performance testing.

Offered: Contact department at 206-5098.

**SMT 111 Diesel Electrical**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Theory and diagnosis of diesel electrical systems. Includes diesel starting, charging, accessory electrical systems and components, malfunctions, troubleshooting, and repair. Also includes various industry standard diagnostic electrical equipment and testing techniques.

Offered: Contact department at 206-5098.

**SMT 112 Diesel Fuel Systems**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Theory, diagnosis and service of hydro-mechanical and electronic diesel fuel systems. Includes how to analyze fuel system components, and system operational characteristics. Also includes testing and service procedures of diesel fuel systems common to mining equipment.

Offered: Contact department at 206-5098.

**SMT 120 Advanced Diesel Engines**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Concepts and techniques related to heavy duty diesel engine fuel, compression, air induction, and exhaust systems, diagnosis and repair of mechanical engines. Includes how to isolate and repair mechanical engine, fuel, and air induction systems. Also includes how to use industry standard tooling and repair information.

Offered: Contact department at 206-5098.

**SMT 121 Steering, Suspension and Brakes for Mining Vehicles**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Theory, diagnosis, and repair of heavy equipment suspension, steering and brake systems of mining vehicles. Includes tires and wheels, steering components, suspension types, and hydraulic and air brake systems construction and operation. Also includes diagnostic and service techniques of suspension, steering and braking systems.

Offered: Contact department at 206-5098.

**SMT 130 Industrial Shop Practices**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Concepts and techniques for industrial repair and maintenance shops. Includes safe and efficient use of hand and power tools, fine measurement, tool maintenance and sharpening.

Offered: Contact department at 206-5098.

**SMT 131 Industrial Pump Maintenance and Repair**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Concepts and techniques to maintain and repair pumps used in the surface mining industry. Includes pump construction, operation, application and troubleshooting.

Offered: Contact department at 206-5098.

**SMT 132 Industrial Valve Maintenance and Repair**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Concepts and techniques for valve construction, operation, and associated piping systems found in the surface mining industry. Includes assembly and disassembly of valves, common causes of valve failure and troubleshooting techniques.

Offered: Contact department at 206-5098.

**SMT 140 Bulk Materials Handling**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Safe operation, maintenance, and repair of industrial materials handling machinery. Includes conveyors, feed and discharge devices, screens, and crushers.

Offered: Contact department at 206-5098.

**SMT 142 Machinery Maintenance and Troubleshooting**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Systematic methods to identify causes of mechanical failure. Includes use of predictive methods to prevent mechanical failure and maximize machinery life.

Offered: Contact department at 206-5098.

**SMT 150 Electricity and Electronics**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Basic principles of electricity and electronics theory with a heavy emphasis on industrial applications. Includes the use of electrical theory, circuits, electrical measurements, schematics, wiring diagrams, and symbols, and practical mining applications.

Offered: Contact department at 206-5098.

**SMT 151 DC Electrical Systems**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Introduction to Direct Current (DC) theory and systems emphasizing industrial applications and setting. Includes batteries, DC circuits, electrical test and measuring equipment, various conductors, semiconductors, and insulators. Also includes how to develop troubleshooting skills.

Offered: Contact department at 206-5098.

**SMT 152 AC Electrical Systems**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Introduction to alternating current (AC) theory and systems in industrial application settings. Includes transformers, electrical measuring test equipment, single and polyphase motors, AC generation. Also includes how to troubleshoot electrical systems.

Offered: Contact department at 206-5098.

**SMT 153 Conduits and Raceways**

3 cr. hrs. 5 periods (1 lec., 4 lab)

Introduction to conduit and raceway installation and bending with heavy emphasis on industrial applications and settings. Includes conduit types sizes, tools and equipment used to cut, bend, thread and install electrical conduit. Also includes hands-on application to wire pulling and termination methods.

Offered: Contact department at 206-5098.

**SMT 190 Surface Mining Technology Internship I**

2 cr. hrs. 10 periods (10 lab)

Supervised field experience in a surface mine. Includes discussion and application of concepts relevant to the surface mining technology field. Also includes individualized internship placement to develop personal professional skills in either diesel technology, electrical technology or industrial plan technology.

*Information: This course requires admission to the SMT program before enrolling.*

*Information: Requires students to meet with the instructor and on-site supervisor.*

Offered: Contact department at 206-5098.

**SMT 191 Surface Mining Technology Internship II**

2 cr. hrs. 10 periods (10 lab)

Supervised field experience with a participating surface mine to expand career interests and apply subject knowledge relevant to the surface mining technology field. Includes individualized internship placement to develop personal and professional skill in either diesel technology, electrical technology or industrial plan technology.

*Information: Designed for students in their second semester of course work in the Surface Mining Technology program.*

Offered: Contact department at 206-5098.

**SMT 205 Blueprint Interpretation for Surface Mining**

3 cr. hrs. 3 periods (3 lec.)

Interpretation of construction documents and drawings. Includes basic drafting and blueprint reading skills and their application to construction, and component, basic electrical, and basic welding print reading for surface mining. Also includes development of the learner's visualization and plan interpretation skills with respect to specific concepts.

Offered: Contact department at 206-5098.

**SMT 210 Heating and Air Conditioning for Mining Vehicle**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Diagnosis and repair of heavy equipment heating, ventilation, and air conditioning (HVAC) systems. Includes personal and environmental safety, system components, system diagnosis and repair. Also includes refrigerant recovery, recycling and handling.

Offered: Contact department at 206-5098.

**SMT 220 Mining Equipment Drivetrain**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Procedures and techniques to service and repair mining equipment, manual and automatic transmissions, and the drive-train. Includes theory, diagnosis, and service of clutches, driveline, synchro transmissions and final drives, torque converters, and automatic transmission. Also includes proper repair and service of assemblies for standard and automatic transmissions.

Offered: Contact department at 206-5098.

**SMT 260 Motors and Motor Control for Mining**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Theory, diagnosis and the repair of various motors used in surface mining and operation of heavy mining equipment. Includes construction and operation of single phase and three phase induction motors, run capacitors, start capacitors, contactors, motor starters, relays, and over current protection devices. Also includes diagnostic, installation and service techniques.

**Prerequisite(s):** SMT 150 and 152, or permission of department.

Offered: Contact department at 206-5098.

**SMT 261 Programmable Logic Controllers**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Concepts and techniques to use programmable logic controls. Includes control systems, modes, inputs and outputs and final control elements. Also includes mining equipment applications.

Offered: Contact department at 206-5098.

**SMT 290 Surface Mining Technology Internship III**

3 cr. hrs. 15 periods (15 lab)

Supervised field experience with a participating surface mine to expand career interests and apply subject knowledge relevant to the surface mining technology field. Includes individualized internship placement to develop personal and professional skill in either diesel technology, electrical technology or industrial plan technology.

*Information: Designed for students in their third semester of course work in the Surface Mining Technology program.*

Offered: Contact department at 206-5098.

**SMT 291 Surface Mining Technology Internship IV**

3 cr. hrs. 15 periods (15 lab)

Supervised field experience with a participating surface mine to expand career interests and apply subject knowledge relevant to the surface mining technology field. Includes individualized internship placement to develop personal and professional skill in either diesel technology, electrical technology or industrial plan technology.

*Information: Designed for students in their fourth semester of course work in the Surface Mining Technology program.*

Offered: Contact department at 206-5098.

## Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**TEC 100 Introduction and Overview of Electronics**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Examination 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 foundations relative to the electronics industry.

Offered: Fall, Spring.

**TEC 101 Physics for Technology**

3 cr. hrs. 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.

Offered: Fall, Spring.

**TEC 103 Light and Optical Systems**

2 cr. hrs. 3 periods (1 lec., 2 lab)

Introduction to light and optical systems used in photolithographic processes and equipment in semiconductor manufacturing. Includes the electromagnetic spectrum, basic principles of light, light sources, interaction between matter and light, optics terminology, and standing waves. Also includes filters, microscopes, photolithography, and optical fibers.

**Prerequisite(s):** TEC 113.

Offered: Spring.

**TEC 104 Introduction to Robotics**

3 cr. hrs. 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 with RCX, and programming commands. Also includes preparation for competition, new ideas for design, preparing the program, testing and competing with Roverbot, new ideas for design, challenging design, and competing with Inventorbot.

Offered: May not be offered this year, check class schedule.

**TEC 105 Electronic Assembly Tools**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduces hand tools and measuring devices used in electronics and electromechanical assemblies. Includes basic and special assembly tools, fastener installation and removal tools, precision measuring tools, fabrication tools, and torque and optical measuring instruments. Also includes an emphasis on required safety procedures and practices and the use of selected tools, measuring devices and procedures.

Offered: Fall.

**TEC 111 Applied Math I**

2 cr. hrs. 2 periods (2 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.

*Information: TEC 111A, 111B, and 111C together constitute TEC 111.*

Offered: Fall.

**TEC 112 Applied Math II**

2 cr. hrs. 2 periods (2 lec.)

Continuation of TEC 111. Includes graphing, linear equations, functional notation, quadratic equations, and solving systems of linear equations. Also includes many examples and exercises pertaining to electrical, magnetic, fluidic, thermal, and mechanical systems; and layout and analysis of resistor, diode and transistor circuits using a circuit simulation program.

**Prerequisite(s):** TEC 111.

*Information: TEC 112A, 112B, and 112C together constitute TEC 112.*

Offered: Spring.

**TEC 113 Problem Solving for Electronics and Optics**

3 cr. hrs. 3 periods (3 lec.)

Problem solving for electronics and optics. Includes exponents and radicals, logarithmic and exponential functions, application of equations, resistive-capacitive and resistive-inductive transient behavior, trigonometric considerations, circular functions, vectors and phasors, mathematics of phasors, alternative current and circuits, and sinusoidal alternating current. Also includes coordinate systems, the conic sections, trigonometric identities, complex exponentials, Euler's formula, and examples in optics.

**Prerequisite(s):** MAT 122 or TEC 112 or required score on the mathematics assessment test.

Offered: Fall..

**TEC 117 Optical Assembly Techniques**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Fundamental procedures used during the assembly of optical equipment. Includes vibration isolation, epoxy and curing, mounting optics, alignment aids, assembly and disassembly techniques, fasteners, and materials. Also includes thermal considerations, vibration mounting of components, baffles, hermetic sealing, and metal finishing.

**Recommendation:** Completion of TEC 116 before enrolling in this course.

Offered: Fall.



**TEC 121 Basic Electric and Magnetic Properties**

3 cr. hrs. 3 periods (3 lec.)

Introduction to AC, DC, and magnetic circuit theory. Includes passive devices, terminology, basic laws, network calculations, electrical measurements, instruments, and units. Also includes use of hand tools, safety, use of schematic and block diagrams, troubleshooting, and electronic circuit applications.

**Prerequisite(s):** TEC 100 and 111.

**Corequisite(s):** TEC 121LB

Offered: Fall, Spring.

**TEC 121LB Basic Electric and Magnetic Properties Lab**

1 cr. hrs. 3 periods (3 lab)

Introduction to AC, DC, and magnetic circuit theory. Includes passive devices, terminology, basic laws, network calculations, electrical measurements, instruments, and units. Also includes use of hand tools, safety, use of schematic and block diagrams, troubleshooting, and electronic circuit applications. This is the Lab portion of TEC 121.

**Prerequisite(s):** TEC 100 and 111.

**Corequisite(s):** TEC 121

Offered: Fall, Spring.

**TEC 122 Applied Semiconductor Devices**

3 cr. hrs. 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, 121.

**Corequisite(s):** TEC 122LB

Offered: Spring.

**TEC 122LB Applied Semiconductor Devices Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 122.

**Prerequisite(s):** TEC 113, 121.

**Corequisite(s):** TEC 122

Offered: Spring.

**TEC 123 Digital Circuits and Computers**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 123.

**Corequisite(s):** TEC 123

Offered: Fall.

**TEC 125 AC Networks with Phasors**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 4 periods (2 lec., 2 lab)

Basic skills working on construction and assembly of electronic equipment. Includes soldering through-hole and surface mount components, reading and interpreting internal electronic wiring schematic, and mechanical assembly diagrams. Also includes performing printed circuit board construction, wiring and cabling construction, terminations and chassis construction.

**Prerequisite(s):** TEC 100, 105 and 111.

Offered: Spring.

**TEC 127 Printed Circuit Board Solder Assembly**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Advanced skills for assembly of electronic equipment. Includes wire and terminals connections; through-hole and surface mount soldering of components; printed circuit board requirements; coatings and encapsulations; and rework, repair and inspection methodology. Also included IPC standards to prepare student for IPC J-STD-001 Certification by exam.

**Prerequisite(s):** TEC 100, 105, 111.

**Corequisite(s):** TEC 126

Offered: Spring.

**TEC 128 Electronic Measurements**

2 cr. hrs. 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 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Computer system assembly, set-up, and start-up. Includes computer systems overview, safety precautions, support equipment, operating systems, system assembly, system start-up, troubleshooting, and peripheral connections.

**Corequisite(s):** TEC 130LB

Offered: Fall, Spring.

**TEC 130LB Computer Assembly and Testing Lab**

1 cr. hrs. 2 periods (2 lab)

This is the Lab portion of TEC 130.

**Corequisite(s):** TEC 130

Offered: Fall, Spring.

**TEC 132 Computer Systems Servicing**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 132.

**Corequisite(s):** TEC 132

Offered: May not be offered this year, check class schedule.

**TEC 160 Microcomputers and Programming Techniques**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to microcomputer operation. Includes overview and history of the microcomputer, applications, terminology and specifications, software/programming, operating systems, disk operations, programming in BASIC, and introduction to Assembly Language.

**Prerequisite(s):** MAT 092 or TEC 111.

*Information: Prerequisite maybe waived with consent of instructor.*

Offered: Fall.

**TEC 221 Linear Devices**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Linear devices in electronic systems. Includes overview of linear integrated circuits, the ideal operational amplifier, real operational amplifier parameters, selected linear and non-linear applications and transfer functions, phase lock loops, voltage reference circuits, and voltage regulators. Also includes optoelectronic devices, power supply bypassing, convertors, other selected linear devices, and testing and troubleshooting.

**Prerequisite(s):** TEC 122 and 125.

Offered: Spring.

**TEC 222 Electromechanical Devices and Systems**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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: Fall.

**TEC 225LB Fluid Devices and Automated Systems Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 225.

**Corequisite(s):** TEC 225

Offered: Fall.

**TEC 228 RF and Microwave Devices**

3 cr. hrs. 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: Fall.

**TEC 228LB RF and Microwave Devices Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 228.

**Corequisite(s):** TEC 228

Offered: Fall.

**TEC 230 Peer-to-Peer Networking and Network Cabling Fundamentals**

3 cr. hrs. 3 periods (3 lec.)

Introduction to basic networking concepts and cabling standards. Includes the Open System Interconnection (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 132/132LB.

**Corequisite(s):** TEC 230LB

*Information: Prerequisite maybe waived with consent of instructor.*

Offered: Fall.

**TEC 230LB Peer-To-Peer Networking and Network Cabling Fundamentals Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 230.

**Corequisite(s):** TEC 230

Offered: Fall.

**TEC 250 Digital Devices**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 250.

**Corequisite(s):** TEC 250

Offered: Fall.

**TEC 251 Analog Circuits**

3 cr. hrs. 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: Fall, Spring.

**TEC 251LB Analog Circuits Lab**

1 cr. hrs. 3 periods (3 lab)

This is the Lab portion of TEC 251.

**Corequisite(s):** TEC 251

Offered: Fall, Spring.

**TEC 286 Fiber Optics Installation and Testing**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Installation and use of optical fibers and related equipment in the optical industry. Includes optics theory, fiber types, cable assembly and installation, testing of cables, special equipment, and survey of applications.

**Prerequisite(s):** TEC 103.

Offered: Fall.

**TEC 287 Laser Fundamentals**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Fundamentals of lasers and how they are built and used in industry. Includes laser safety, properties of laser light, introduction to quantum mechanics, cavity design, effects of extra cavity feedback and stability, laser types and applications, cooling, and assembly and testing techniques.

**Prerequisite(s):** TEC 103.

Offered: Fall.

**TEC 288 Optical Testing**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Common techniques and equipment for testing of optical systems and components. Includes optical testing theory, measurement of paraxial parameters, interferometers, non- interferometric tests, and surface profiling.

**Prerequisite(s):** TEC 103.

Offered: Spring.

**TEC 290 Technology Education Field Experience**

1-6 cr. hrs. 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.*

*Information: May be taken two times for a maximum of six credit hours.*

Offered: May not be offered this year, check class schedule.

## Theater

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**THE 104 Voice and Movement for the Actor**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Principles and practice of voice and movement skills for the actor. Includes phonetics, physical isolation and awareness exercises, development and practice of stage dialects, and physicalization of character.

*Information: May be taken five times for a maximum of fifteen credit hours.*

Offered: Fall, Spring.

**THE 105 Theater Appreciation**

3 cr. hrs. 3 periods (3 lec.)

An exploration of the theory and practice of the discipline of theatre art. Includes setting the stage for understanding and appreciating theatre arts, the artists, and production of the play.

**Prerequisite(s):** WRT 100 or 101 or 102.

*Information: Students are expected to attend and critique a minimum of one theatrical production. Students may, at the discretion of the instructor, receive additional credit for participation in a PCC theatre production when this participation is not part of the student's requirements for another class.*

Offered: Fall, Spring, Summer.

**THE 110 Movement/Dance for Actors**

2 cr. hrs. 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 cr. hrs. 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

Offered: Fall, Spring.

**THE 113 Stagecraft Crew**

1 cr. hrs. 3 periods (3 lab)

Preparing, organizing, setting up, running and shifting of theatrical sets, properties and costumes for approved theatrical productions. Includes scenic cost estimates and budget, construction, planning and execution, production deadlines, property acquisition, and props construction. Also includes painting and finishing, scenery shifting, and property organization, distribution, and security.

**Corequisite(s):** THE 111

Offered: Fall, Spring.

**THE 115 Make-Up**

1 cr. hrs. 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: May not be offered this year, check class schedule.

**THE 118 Basic Theater Graphics**

3 cr. hrs. 3 periods (3 lec.)

Principles and practice of graphic skills necessary in the planning of theatrical productions. Includes techniques of pencil sketching, study of theatrical drafting conventions, techniques of mechanical drawing, study of mechanical perspective, color rendering techniques, study of color theories, and study of computer design applications for theatrical drafting.

Offered: May not be offered this year, check class schedule.

**THE 125 Theater Production**

2 cr. hrs. 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.*

*Information: Consent of instructor required before enrolling in this course.*

Offered: Fall, Spring.

**THE 140 History of Theater to the 18th Century**

3 cr. hrs. 3 periods (3 lec.)

Survey of theater, drama and audiences from their origins to the late 18th century. Includes origins of theater, physical theater, tragic and comic theories and genres, Greek and Roman tragedies and comedies, neo-classical drama, and major styles and specific plays.

Offered: Fall.

**THE 141 History of Theater Since the 18th Century**

3 cr. hrs. 3 periods (3 lec.)

Survey of theater, drama, and audiences from the 18th century to the present. Includes physical theater in the 19th and 20th centuries; styles, forms, and genres; and new styles of performance and types of dramas.

Offered: May not be offered this year, check class schedule.

**THE 148 Costume Design**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to basic design techniques for theater costumes. Includes identifying and applying elements, sketching and coloring, paper fabrication of costume design, script and character analysis, application of historical research, and production scheduling and budget.

*Information: Same as FDC 148. May be taken two times for a maximum of six credit hours.*

Offered: Fall.

**THE 149 Introduction to Acting I**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Introduction to performance techniques and the development of physical skills for effective performance. Includes theatrical codes of behavior, exercise and structured improvisations, control of emotions and body, verbal and non-verbal intentions, emotional recall techniques and exercises, concentration and centering exercises, and physical investment exercises. Also includes physical projection of emotional states, imagery, auditioning, critiques of two productions, maintaining spontaneity, critiques of two productions, maintaining spontaneity, character analysis, playing a character, and monologues and scenes.

Offered: Fall, Spring.

**THE 151 Introduction to Acting II**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of THE 149. Includes character analysis and development exercises, analysis of scenes and plays, critiques of two productions, acting vocabulary and its application, sub-texts to a scene, exercises in emotional investment; and analyzing, playing intentions, and super objectives in a script.

**Prerequisite(s):** THE 104 or concurrent enrollment and THE 149.

Offered: Fall, Spring.

**THE 152 Costume Construction**

3 cr. hrs. 5 periods (2 lec., 3 lab)

Introduction to basic costume construction techniques for theater costumes. Includes period patterning, period silhouettes, review of basic sewing and construction, measuring and fitting, commercial patterns, recycled garments, and construction of a period costume.

**Prerequisite(s):** FDC 110 and 111 and FDC/THE 148.

*Information: Same as FDC 152. May be taken two times for a maximum of six credit hours.*

Offered: Spring.

**THE 210 Screen Acting**

2 cr. hrs. 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 220 Stage Lighting**

3 cr. hrs. 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 cr. hrs. 3 periods (3 lab)

Organizing, setting up and operating of stage lighting for approved theatrical productions. Includes analysis of designer information, cost estimates and budgeting, planning and execution of operations, and control board techniques for rehearsals and performances.

**Corequisite(s):** THE 220

Offered: Fall.

**THE 223 Scene Design**

3 cr. hrs. 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.

Offered: May not be offered this year, check class schedule.

**THE 245 Principles of Dramatic Structure SUN# THE 2220**

3 cr. hrs. 3 periods (3 lec.)

Examination of the structural elements of major dramatic forms and styles. Includes role of the dramaturge; examination of major themes; analysis of dramatic forms, styles, and actor-audience relationships; visualizing a text; and character analysis. Also includes analysis of text for language and poetic elements, dramatic criticism, and play production as a collaborative effort.

Offered: Spring.

**THE 250 Intermediate Acting I**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Intermediate Acting I Theory and practice of creating sustained character portrayals through the performance of a series of monologues, chosen from a broad spectrum of both classical and contemporary theatrical literature. Includes participation in physical and vocal exercises and improvisations, exercises to expand actor's instruments, study of Shurtleff theory, nuances of auditions, and technique of voice over. Also includes performance of audition monologues, audition scenes, audition songs, scenes for an audition, commercial scripts, and oral report on audition experiences.

**Prerequisite(s):** THE 103, 111 or concurrent enrollment, 149.

Offered: Fall.

**THE 251 Intermediate Acting II**

3 cr. hrs. 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 cr. hrs. 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.**Information: Consent of instructor is required before enrolling in this course.*

Offered: May not be offered this year, check class schedule.

## Therapeutic Massage

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**TMA 101 Introduction to Massage Therapy**

3 cr. hrs. 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.

**Prerequisite(s):** WRT 100 with a C or better or the required score on the Writing assessment test.

Offered: Fall, Spring.

**TMA 120 Professionalism and Ethics for Massage Therapists**

2 cr. hrs. 2 periods (2 lec.)

Overview of the ethics and professionalism related to an effective, successful massage therapy/bodywork practice. Includes general ethical principles of practice and professional dress, conduct, boundaries and communication.

Offered: Spring.

**TMA 125 Business, Ethics and Professionalism for Massage Therapy**

4 cr. hrs. 4 periods (4 lec.)

Overview of business, ethics, and professionalism related to an effective, successful massage therapy and bodywork practice. Includes business start up and development, business plan, financial management, marketing, and communications. Also includes general ethical principles of practice, professional dress and conduct, boundaries, and ethical business practices.

**Prerequisite(s):** WRT 100 with a grade of C or better, or required score on the Writing assessment test.

Offered: May not be offered this year, check class schedule.



**TMA 201IN Therapeutic Massage Practices I**

6 cr. hrs. 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):** With a grade of C or better: BIO 160IN, TMA 101, TMA 120, WED 110, and WED 111.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall.

**TMA 202IN Therapeutic Massage Practices II**

6 cr. hrs. 9 periods (3 lec., 6 lab)

Refined application of the nine strokes of Swedish massage and contraindications to avoid. Includes application of advanced principles and techniques of trigger point therapy, muscle energy technique, stretching, hydrotherapy protocols, hot and cold applications, reflexology, and corporate massage. Also includes study of the human osseous and muscular structure with emphasis on normal movement patterns and the origin, insertion, and function of the muscular system.

**Prerequisite(s):** TMA 201IN with a grade C or better.

*Information:* IN indicates an integrated course with lecture and lab taught simultaneously. Course is restricted to students enrolled in the program.

Offered: Fall.

**TMA 202LC Therapeutic Massage Practice Clinical Lab I**

1 cr. hrs. 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 201IN.

**Corequisite(s):** TMA 202IN

Offered: Fall.

**TMA 203IN Therapeutic Massage Practices III**

6 cr. hrs. 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 215 with a grade of C or better.

*Information:* Course restricted to students admitted to program.

*Information:* 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 cr. hrs. 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 202IN.

**Corequisite(s):** TMA 203IN

Offered: Spring.

**TMA 210 Fundamentals of Kinesiology**

3 cr. hrs. 4 periods (2 lec., 2 lab)

A survey of the biology of movement. Includes a review of the skeletal and muscular systems, planes of movement and terms of anatomical reference; structure and function of joints; and origins, insertions and actions of muscles of the trunk and limbs. Also includes demonstration and analysis of normal and abnormal movement.

**Prerequisite(s):** BIO 160IN with a grade of C or better.

Offered: Spring.

**TMA 214 Pregnancy Massage**

1 cr. hrs. 1 periods (1 lec.)

Basic information and techniques for performing massage on pregnant clients. Includes information about body changes during pregnancy, benefits and cautions of pregnancy massage, and techniques for common discomforts during pregnancy. Also includes pre-session considerations, setting and supplies for pregnancy massage and suggestions for documentation.

**Prerequisite(s):** TMA 201IN with a grade of C or better.

*Information:* Must be an advanced massage student or licensed massage therapist. Prerequisite may be waived with consent of instructor.

Offered: Summer.

**TMA 215 Introduction to Pathology for Massage and Bodywork**

3 cr. hrs. 3 periods (3 lec.)

Introduces the student to basic disease processes and common pathologies associated with organ systems and provides an overview of pathology pertinent to massage therapy and bodywork. Includes cautions, contraindications and adaptive measures as applied to common pathologies of organ systems. Also includes the potential interactions between bodywork and medications.

**Prerequisite(s):** BIO 160 and TMA 101 with a grade of C or better.

Offered: Fall.

**TMA 222 Business Management for Massage and Bodywork**

2 cr. hrs. 2 periods (2 lec.)

Business management course designed specifically for massage therapy and bodywork practitioners. Includes business planning and development, financial management, marketing, and communications for these professional practices.

**Recommendation:** Concurrent enrollment in TMA 290LC.

Offered: Fall, Spring, Summer.

**TMA 240 Therapeutic Massage National Certification Exam Preparation**

2 cr. hrs. 2 periods (2 lec.)

Preparation for National Certification Exam in Therapeutic Massage and Bodywork. Includes anatomy, physiology, kinesiology, and pathology of body systems; Asian and non-Western bodywork approaches; massage and bodywork assessment, theory and application. Also includes professional standards, ethics, and business and legal practices; effective study approaches; and test-taking strategies.

*Information:* Offered for current massage students, licensed massage therapists, or bodyworkers.

Offered: Summer.

**TMA 290LC Therapeutic Massage Clinical**

3 cr. hrs. 8 periods (8 lab)

Application and integration of fundamental and advanced massage techniques 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):** Completion of TMA 101, 125, 201IN, 202IN, 202LC, 203IN, 203LC, 210, 215, and WED 110, 111 with a grade of "C" or better.

Offered: Spring.

**TMA 291 Therapeutic Massage Internship**

1 cr. hrs. 5 periods (5 lab)

Advancement and refinement of the knowledge, practice skills and professional abilities necessary for success in a therapeutic massage setting. Includes observing, assisting and participating in various duties and massage practices in an off-site, clinical therapeutic massage setting as appropriate and specific to the internship site. Also includes observation and application of business and professional skills.

**Prerequisite(s):** Completion of TMA 101, 125, 201IN, 202IN, 202LC, 203IN, 203LC, 210, 215 and WED 110, 111 with a grade of "C" or better.

*Information:* May be taken three times for a maximum of three credit hours.

*Information:* Students enrolling for the first time must take the course concurrently with TMA 290LC.

Offered: Spring.

**TMA 296 Therapeutic Massage Independent Study**

1-3 cr. hrs. 2-6 periods (.5-1.5 lec., 1.5-4.5 lab)

Opportunity to continue development as a massage therapist through the pursuit of a specific project or area of study in therapeutic massage. Content will be determined by instructor and student.

*Information: Students must obtain faculty approval before enrolling in this course.*

*Information: Course content and performance objectives will be kept on file.*

*Information: May be taken three times for a maximum of three credit hours.*

**Offered:** May not be offered this year, check class schedule.

## Tohono O'Odham

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**THO 101 Elementary Tohono O'odham I**

4 cr. hrs. 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:** May not be offered this year, check class schedule.

**THO 102 Elementary Tohono O'odham II**

4 cr. hrs. 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:** May not be offered this year, check class schedule.

## Translation and Interpretation Studies

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**TRS 101 Introduction to Translation and Interpretation**

3 cr. hrs. 3 periods (3 lec.)

Principles and procedures for acquisition of skills in interpretation and translation of written materials. Includes an introduction to translation and interpretation; translation and interpretation preparation, procedures, and specialties; and work of the translator and interpreter.

**Offered:** Fall, Spring.

**TRS 102 English and Spanish for Translation**

4 cr. hrs. 4 periods (4 lec.)

Analysis of the English and Spanish languages from the translator's point of view. Includes the structure of English and Spanish, cultural and stylistic components, and semantics. Also includes standard English mechanics, punctuation, and metaphorical and idiomatic expressions as well as an analysis of Spanish and the dialectal differences, interferences and lexical obstacles.

**Prerequisite(s):** SPA 254 and WRT 102.

**Offered:** Fall, Spring.

**TRS 110 Translation and Interpretation Strategies for All Languages**

3 cr. hrs. 3 periods (3 lec.)

Language neutral approach to the principles and procedures for translation and interpretation. Includes translation and interpretation preparation, strategies, procedures, and specialties delivered in English.

**Offered:** Fall, Spring.

**TRS 120IN Technology for Translation and Interpretation**

2 cr. hrs. 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 100 and TRS 101.

*Information: CSA 100 may be waived if computer applications experience is documented. See an instructor.*

*Information: IN is the integrated version of the course with lecture and lab taught simultaneously.*

Offered: Spring.

**TRS 150 Survey of Translation Specialty Areas**

4 cr. hrs. 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.

Offered: Spring.

**TRS 160 Translation in Specialty Areas**

4 cr. hrs. 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 150.

Offered: Fall.

**TRS 161 Medical Spanish and English Interpreting**

3 cr. hrs. 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: Fall.

**TRS 162 Introduction to Legal Spanish/English Interpretation**

3 cr. hrs. 3 periods (3 lec.)

Interpreting in a legal context. Includes interpreting in a legal setting, knowledge of legal procedure and ancillary issues related to legal terminology in Spanish and English, bicultural legal communication, and regional differences.

*Information: Requires Spanish/English language fluency.*

Offered: Spring.

**TRS 202 Interpretation Techniques**

3 cr. hrs. 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.

*Information: Consent of instructor is required before enrolling in this course.*

*Information: See the TRS instructor or department chair for more prerequisite information.*

Offered: Spring.

**TRS 203 Consecutive Interpretation and Sight Translation**

4 cr. hrs. 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 202.

*Information: Prerequisite(s) may be waived with consent of instructor.*

Offered: Fall.

**TRS 270 Simultaneous Interpretation**

4 cr. hrs. 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 cr. hrs. 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 101, 102, 160.

Offered: Spring.

## Travel/Tourism Operations

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

**TVL 101 Introduction to the Travel Industry**

3 cr. hrs. 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, Summer.

**TVL 102 Computerized Reservation Systems**

3 cr. hrs. 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, Summer.

**TVL 103 Geography for the Tourism Professional**

3 cr. hrs. 3 periods (3 lec.)

Examination of tourist attractions and applied physical geography of global tourism destinations. Students will choose three of the following geographic areas on which to focus: North America, Mexico, Northern and Central Europe, East Africa, East Asia, France, Southern Europe, Alaska, Hawaii, and Hong Kong. Includes the Travel Institute's Destination Specialist Certification Exam in the geographic areas studied.

Offered: Fall, Spring, Summer.

**TVL 109 Survey of Leisure Products**

3 cr. hrs. 3 periods (3 lec.)

Leisure travel components. Includes hotels, rental cars, AMTRAK, tours, and cruise accommodations.

Offered: Fall, Spring, Summer.

**TVL 121 Tourism Sales and Marketing**

3 cr. hrs. 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, Summer.

**TVL 209 Introduction to Tour Guiding**

3 cr. hrs. 4 periods (3 lec., 1 lab)

Specific training for students interested in becoming a tour guide. Includes career opportunities, Destination Management Companies, managing tour groups, public speaking, and pre-tour planning. Also includes briefing tour members, tour guide policies and procedures, airport departure and arrival procedures, dealing with health and medical issues and other tour group problems, and preparing for a job interview.

Offered: May not be offered this year, check class schedule.

**TVL 211 Tour Direction and Tour Group Management**

3 cr. hrs. 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, Summer.

**TVL 296 Independent Study in Travel/Tourism**

1-3 cr. hrs. 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, Summer.

## Truck Driver Training

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**TDT 116 Basic Vehicle Operations-Coach/Transit Bus**

3 cr. hrs. 3 periods (3 lec.)

Information to prepare the trainees to pass the Commercial Driver License (CDL) exam and obtain a Class "B" permit with a "P" passenger endorsement. Includes CDL preparation, driving conditions, pre-trip inspection, air brakes, map reading, hours of service, backing, and transporting passengers.

*Information: Admission to the Truck Driver Training Program is required prior to registration.*

Offered: May not be offered this year, check class schedule.

**TDT 117 Basic Driving Maneuvers - Coach/Transit Bus**

3 cr. hrs. 3.5 periods (2.5 lec., 1 lab)

Techniques for the inspection and safe operation of a coach or transit bus. Includes pre-trip inspection, backing, basic control of left and right turns, progressive shifting, space and speed management, visual search and communication, defensive driving, and hazard perception.

*Information: Admission to the Truck Driver Training Program is required prior to registration.*

Offered: May not be offered this year, check class schedule.

**TDT 118 Basic Vehicle Operations and Commercial Driver's License Requirements**

5 cr. hrs. 5 periods (5 lec.)

Basic methods of safely operating a combination vehicle. Includes the operation of the air brake system, coupling and uncoupling a tractor and trailer, cargo handling including hazardous materials, proper method of conducting a pre-trip inspection, completion of braking maneuvers, and trip planning. Also includes familiarization of the United States Department of Transportation (USDOT) regulations, hours of driver service, and all Commercial Driver's License (CDL) requirements, managing a professional driver life, managing speed effectively, and road and weather condition response.

*Information: Admission to the Truck Driver Training Program is required prior to registration.*

Offered: Fall, Spring, Summer.

**TDT 119 Basic Driving Maneuvers ø Class A CDL**

3.5 cr. hrs. 4 periods (3 lec., 1 lab)

Demonstration and skill development of basic maneuvers of driving a combination vehicle. 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 Commercial Driver's License (CDL) skill examination.

**Prerequisite(s):** Completion of TDT 118 with a grade of C or better.

*Information: Admission to the Truck Driver Training Program is required prior to registration. A valid Commercial Driver's License (CDL) permit will meet the prerequisite for TDT 118.*

Offered: Fall, Spring, Summer.

**TDT 120 Truck Driver Training Refresher**

3.5 cr. hrs. 4 periods (3 lec., 1 lab)

Overview of Truck Driver skill requirements. Includes all range and road skills with instruction in control, backing, visual search, shifting, turning, space and speed management, and hazard perception.

*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.

## Turkish

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**TUR 101 Elementary Turkish I**

5 cr. hrs. 5 periods (5 lec.)

Introduction to the Turkish language and cultures. 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.

**TUR 102 Elementary Turkish II**

5 cr. hrs. 5 periods (5 lec.)

Continuation of TUR 101. Includes further development of oral and written forms, additional grammatical structures, interpersonal transactions, and geographical and cultural awareness. Also includes an emphasis on balancing more complex structures with active communication in the Turkish language.

**Prerequisite(s):** TUR 101 or equivalent.

Offered: May not be offered this year, check class schedule.

## Veterinary Science

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**VSC 101 Introduction to Veterinary Science I**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Basic instruction in the comparative anatomy and physiology of mammals. Includes basic cell biology, tissue types and functions. Also includes major body systems and their roles in veterinary science.

Offered: Fall.

**VSC 102 Introduction to Veterinary Science II**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of VSC 101. Includes basic instruction in nutrition, diseases, surgery, and their roles in veterinary science. Also includes discussion of decision making in veterinary science.

**Prerequisite(s):** VSC 101.

Offered: Spring.

**VSC 195 Introduction to Research in Veterinary Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Introduction to the methods of research in veterinary science. Includes scientific laboratory procedures, experimental design, scientific writing, scientific ethics, and current research in working laboratories.

*Information: Three credit hours of Veterinary Science and consent of instructor are required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**VSC 196 Independent Study in Veterinary Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Introductory study of a particular Veterinary Science subject or subjects to hone skills while working in an independent format.

*Information: Three credit hours of Veterinary Science and consent of instructor are required before enrolling in this course.*

*Information: 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.*

Offered: Fall, Spring, Summer.

**VSC 290 Veterinary Science Internship**

1-4 cr. hrs. 5-20 periods (5-20 lab)

Internship and work experience in a veterinary science field or laboratory. Includes setting, achieving, and evaluating goals for hands-on learning experiences in veterinary sciences. Also includes development of skills and knowledge needed to work in a veterinary science field or laboratory.

*Information: Six credit hours of Veterinary Science and consent of instructor are required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**VSC 295 Independent Research in Veterinary Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Experience in scientific laboratory research.

**Prerequisite(s):** VSC 195.

*Information: Nine credit hours of Veterinary Science and consent of instructor are required before enrolling in this course.*

*Information: Specific content to be determined by student and instructor.*

Offered: Fall, Spring, Summer.

**VSC 296 Independent Research in Veterinary Science**

1-3 cr. hrs. 1-3 periods (1-3 lec.)

Advanced study of a particular Veterinary Science subject or subjects to hone skills while working in an independent format.

*Information: Consent of instructor is required before enrolling in this course.*

*Information: 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.*

Offered: Fall, Spring, Summer.

## Veterinary Technology

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**VET 100 Introduction to Veterinary Technology**

3 cr. hrs. 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 105 Practical Wildlife Rehabilitation**

3 cr. hrs. 7 periods (1 lec., 6 lab)

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 Veterinary Practice Assistant I**

3 cr. hrs. 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: Consent of program faculty is required before enrolling in this course.*

Offered: Fall, Spring, Summer.



**VET 107 Veterinary Practice Assistant II**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of VET 106. Includes pharmacy, surgical, laboratory and imaging skills.

**Corequisite(s):** VET 106, VET 108

*Information: Consent of program faculty is required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**VET 108 Introduction to Veterinary Facility Practices**

6 cr. hrs. 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: Consent of program faculty is required before enrolling in this course.*

Offered: Fall, Spring, Summer.

**VET 110 Veterinary Nursing Procedures I**

3 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 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 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of VET 130. Includes the study of the nervous, respiratory, and reproductive systems and special sense organs. Also includes endocrine, 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 cr. hrs. 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 cr. hrs. 12 periods (12 lab)

Supervised 200 hour 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 cr. hrs. 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: Fall, Spring, Summer.

**VET 200 Anesthetic and Surgical Nursing**

3 cr. hrs. 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 cr. hrs. 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: Large Animal Care**

2 cr. hrs. 5 periods (1 lec., 4 lab)

Veterinary nursing techniques for large animals. Includes restraint procedures; nursing care and behavior of large animals; preventative 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:Avian, Exotic, and Lab Animals**

2 cr. hrs. 5 periods (1 lec., 4 lab)

Veterinary nursing techniques for avian, exotic and laboratory animals. Includes care and management of laboratory animals and exotic companion animals; nursing procedures; preventative health care; and restraint. Also includes mentoring techniques; teamwork; communications; and health problem assessment involving kennel management.

**Prerequisite(s):** VET 111, 120, 131, 150.

**Corequisite(s):** VET 121, VET 200

Offered: Fall.

**VET 220 Clinical Pathology III**

3 cr. hrs. 4 periods (2 lec., 2 lab)

Continuation of VET 121 for 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: Fall.

**VET 225 Veterinary Hospital Procedures**

3 cr. hrs. 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 cr. hrs. 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 II**

3 cr. hrs. 12 periods (12 lab)

Supervised 200 hour 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.

## Welding

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**WLD 110 Basic Arc and Oxyacetylene Welding**

4 cr. hrs. 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, Summer.

**WLD 115 Blueprint Reading/Estimating**

4 cr. hrs. 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 120 Welding for Metal Sculpture**

4 cr. hrs. 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: Spring.

**WLD 160 Arc Welding**

4 cr. hrs. 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.

**WLD 250 Pipe Welding**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Principles and techniques of pipe welding. Includes introduction to pipe layout and drawing equipment. Also includes an introduction to performance testing, types of pipe, methods and preparation of pipe joints and miter joints, methods of joining pipe and miter joints.

**Prerequisite(s):** WLD 160.

*Information: Prerequisite(s) may be waived with appropriate work experience. See a welding instructor or advisor for prerequisite information.*

Offered: Fall.

**WLD 261 Gas Metal Arc Welding**

4 cr. hrs. 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: Spring.

**WLD 262 Gas Tungsten Arc Welding**

4 cr. hrs. 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.

**WLD 263 Layout and Fabrication Welding**

4 cr. hrs. 6 periods (2 lec., 4 lab)

Principles and techniques of steel layout and fabrication welding. Includes measurement, print reading review, layout tools, layout techniques, hand-held power tool safety and use, large power tool safety and use, drawing interpretation, structural methods, and welding projects.

**Prerequisite(s):** WLD 115, 261 and GTM 105 or math assessment at MAT 092 or higher.

**Recommendation:** Completion of WLD 160 before enrolling in this course.

*Information: Prerequisites may be waived for appropriate work experience. See a welding instructor or advisor for prerequisite information.*

Offered: Spring.

**WLD 296 Welding Independent Projects**

1-4 cr. hrs. 3-12 periods (3-12 lab)

Self-directed laboratory projects. Includes project objectives, procedures, safety practices, welding processes, set-up for the project, and project completion.

**Prerequisite(s):** WLD 110.

*Information: Welding industry experience or welding skills may be substituted for the prerequisite requirement. See a welding instructor for approval.*

*Information: May be repeated up to three times for a maximum of sixteen credit hours.*

Offered: Fall, Spring.

## Wellness Education

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**WED 110 Introduction to Complementary and Alternative Medicine**

3 cr. hrs. 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, Spring.

**WED 111 Self Care for Personal Wellness**

2 cr. hrs. 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.

**WED 120 Introduction to Energy Healing**

1 cr. hrs. 1 periods (1 lec.)

An overview of energy modalities, how energy works, how energy can be manifested and used for healing, and the personal responsibilities and ethical considerations for a practitioner of healing.

*Information: Elective course for Therapeutic Massage Program. Open to anyone who wishes to enroll. Recommended to health and wellness professionals for Continuing Education hours.*

Offered: Summer.

**WED 121 Reiki I**

1 cr. hrs. 1 periods (1 lec.)

Instruction and certification in the Usui Method of Reiki Level I. Includes concepts, definitions, history, ethics, levels of Reiki, assessing energy, and hand positions used in Reiki. Also includes Reiki I attunement, and Reiki I sharing.

*Information: Elective course for Therapeutic Massage Program. Open to anyone who wishes to enroll. Recommended to health and wellness professionals for Continuing Education hours.*

Offered: Summer.

**WED 122 Reiki II**

1 cr. hrs. 1 periods (1 lec.)

Review of the Usui Method of Reiki Level I, and instruction and coaching in the concepts and techniques for Usui Method of Reiki Level II: distance healing and healing symbols in Reiki practice. Includes Reiki II attunement and certification.

**Prerequisite(s):** WED 121

*Information: WED 121 may be waived with a Reiki I certificate from a qualified Reiki Master. See instructor for details. Applicable as an elective course for the Therapeutic Massage program and as continuing education hours for health and wellness professionals.*

Offered: Summer.

**WED 124 Craniosacral Therapy for Massage Therapists/Health Professionals**

2 cr. hrs. 2 periods (2 lec.)

Instruction and certification in Craniosacral Therapy: a gentle, non-invasive bodywork technique. Includes history, concepts, effects, hand placements, sensations, and practice of a Craniosacral session.

*Information: Elective course for Therapeutic Massage students. Open to anyone who wishes to enroll. Recommended for health and wellness professionals (equivalent to 26 Continuing Education Hours or 2.6 CEUs.)*

Offered: Summer.

**WED 131 Body Mechanics for Health Care Providers**

1 cr. hrs. 1 periods (1 lec.)

Understanding and practice of techniques to prevent and correct injuries associated with the physical demands and stresses related to health care in residential, outpatient and home facilities; and massage and body work. Includes posture, body mechanics, and self-care strategies to prevent injuries.

**Recommendation:** Recommended for wellness education, continuing education for health care workers, and additional elective study for therapeutic massage students.

Offered: May not be offered this year, check class schedule.

## Women's Studies

*For courses numbered 098, 198, 298, see "Topic Courses" on page 277*

**WST 100 Introduction to Feminist Studies**

3 cr. hrs. 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: May not be offered this year, check class schedule.

**WST 201 La Chicana**

3 cr. hrs. 3 periods (3 lec.)

Interdisciplinary analysis of Chicanas/Mexicanas' status in the United States. Includes interdisciplinary analysis of Chicanas/Mexicanas in the U.S., Chicana/Mexicana scholarship and Social Justice Movements, and Chicana/Mexicana feminism in the Southwest, Chicana/Mexicana community empowerment, Chicanas/Mexicanas on the U.S.-Mexico border.

*Information: Same as MAS 201.*

Offered: May not be offered this year, check class schedule.

**WST 280 Feminist Research Methods**

3 cr. hrs. 3 periods (3 lec.)

Introduces research methods applied in contemporary feminist research. Includes introduction to feminist research, research methods, methodologies, and epistemology, feminist construction of knowledge, feminist research as Theory in Action, qualitative research methods/cross-cultural approaches, feminist research issues of power, academic visibility, empowerment, ethics, social justice and agency, and implications of feminist research.

Offered: May not be offered this year, check class schedule.

## Writing

For courses numbered 098, 198, 298, see "Topic Courses" on page 277

### WRT 070 Developmental Writing

3 cr. hrs. 3 periods (3 lec.)

Development of fundamental writing skills. Includes writing processes and sentence development and structure.

**Prerequisite(s):** Required score on Writing assessment test.

*Information:* WRT 070A, 070B, and 070C together constitute WRT 070.

*Information:* Equivalent to WRT 075.

*Offered:* May not be offered this year, check class schedule.

### WRT 070A Developmental Writing: Module A

1 cr. hrs. 1 periods (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.

*Information:* A student may concurrently enroll in WRT 070A, 070B, and 070C.

*Information:* Equivalent to WRT 075A.

*Offered:* May not be offered this year, check class schedule.

### WRT 070B Developmental Writing: Module B

1 cr. hrs. 1 periods (1 lec.)

Constitutes approximately the second one-third of WRT 070.

**Prerequisite(s):** WRT 070A with a C or better, or concurrent enrollment.

*Information:* WRT 070A, 070B, and 070C together constitute WRT 070.

*Information:* A student may concurrently enroll in WRT 070A, 070B, and 070C.

*Information:* Equivalent to WRT 075B.

*Offered:* May not be offered this year, check class schedule.

### WRT 070C Developmental Writing: Module C

1 cr. hrs. 1 periods (1 lec.)

Constitutes approximately the third one-third of WRT 070.

**Prerequisite(s):** WRT 070B with a C or better, or concurrent enrollment; or concurrent enrollment in WRT 070A and 070B.

*Information:* WRT 070A, 070B, and 070C together constitute WRT 070.

*Information:* A student may concurrently enroll in WRT 070A, 070B, and 070C.

*Information:* Equivalent to WRT 075C.

*Offered:* May not be offered this year, check class schedule.

### WRT 072 Sentence Patterns

1 cr. hrs. 1 periods (1 lec.)

Review of various types of sentence structures. Includes variety of sentences, common grammar and sentence errors, punctuation, and short papers.

*Offered:* May not be offered this year, check class schedule.

### WRT 073 Punctuation

1 cr. hrs. 1 periods (1 lec.)

Review of punctuation mechanics. Includes rules of punctuation, punctuation mark usage, and written assignments.

*Offered:* May not be offered this year, check class schedule.

### WRT 075 Developmental Writing for Non-Native Speakers of English

3 cr. hrs. 3 periods (3 lec.)

Development of fundamental writing skills for non-native speakers of English. Includes writing processes, sentence development and structure, and written works.

**Prerequisite(s):** Required score on the Writing assessment test.

*Information:* WRT 075A, 075B, and 075C together constitute WRT 075.

*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 cr. hrs. 1 periods (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.

*Information:* A student may concurrently enroll in WRT 075A, 075B, and 075C.

*Information:* Equivalent to WRT 070A.

*Offered:* May not be offered this year, check class schedule.

**WRT 075B Developmental Writing for Non-Native Speakers of English: Module B**

1 cr. hrs. 1 periods (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.

*Information:* WRT 075A, 075B, and 075C together constitute WRT 075.

*Information:* A student may concurrently enroll in WRT 075A, 075B, and 075C.

*Information:* Equivalent to WRT 070B.

*Offered:* May not be offered this year, check class schedule.

**WRT 075C Developmental Writing for Non-Native Speakers of English: Module C**

1 cr. hrs. 1 periods (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; or concurrent enrollment in WRT 070A and 070B.

*Information:* WRT 075A, 075B, and 075C together constitute WRT 075.

*Information:* A student may concurrently enroll in WRT 075A, 075B, and 075C.

*Information:* Equivalent to WRT 070C.

*Offered:* May not be offered this year, check class schedule.

**WRT 100 Writing Fundamentals**

3 cr. hrs. 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, one of 500 to 750 words.

**Prerequisite(s):** WRT 070 or 075 with a C or better, or required score on the Writing assessment test.

*Information:* WRT 100A, 100B, and 100C together constitute WRT 100.

*Information:* Equivalent to WRT 106.

*Offered:* Fall, Spring, Summer.

**WRT 100A Writing Fundamentals: Module A**

1 cr. hrs. 1 periods (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.

*Information:* A student may concurrently enroll in WRT 100A, 100B, and 100C.

*Information:* Equivalent to WRT 106A.

*Offered:* Fall, Spring, Summer.

**WRT 100B Writing Fundamentals: Module B**

1 cr. hrs. 1 periods (1 lec.)

Constitutes approximately the second one-third of WRT 100.

**Prerequisite(s):** WRT 100A with a C or better, or concurrent enrollment.

*Information:* WRT 100A, 100B, and 100C together constitute WRT 100.

*Information:* A student may concurrently enroll in WRT 100A, 100B, and 100C.

*Information:* Equivalent to WRT 106B.

*Offered:* Fall, Spring, Summer.



**WRT 100C Writing Fundamentals: Module C**

1 cr. hrs. 1 periods (1 lec.)

Constitutes approximately the third one-third of WRT 100.

**Prerequisite(s):** WRT 100B with a C or better, or concurrent enrollment; or concurrent enrollment in WRT 100A and 100B.

*Information:* WRT 100A, 100B, and 100C together constitute WRT 100.

*Information:* A student may concurrently enroll in WRT 100A, 100B, and 100C.

*Information:* Equivalent to WRT 106C.

Offered: Fall, Spring, Summer.

**WRT 101 Writing I SUN# ENG 1101**

3 cr. hrs. 3 periods (3 lec.)

Principles and practices of college-level writing. Includes using rhetorical principles in analyzing and creating texts, employing critical thinking skills, practicing multiple writing processes, using conventions in creating and revising texts, composing using appropriate technology, and writing college-level essays with an emphasis on argumentation.

**Prerequisite(s):** WRT 100 or 106 with a C or better or required score on writing assessment test.

Offered: Fall, Spring, Summer.

**WRT 101A Writing I: Module A**

1 cr. hrs. 1 periods (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.

*Information:* A student may concurrently enroll in WRT 101A, and 101B, and 101C.

*Information:* Equivalent to WRT 107A.

Offered: Fall, Spring, Summer.

**WRT 101B Writing I: Module B**

1 cr. hrs. 1 periods (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.

*Information:* WRT 101A, 101B, and 101C together constitute WRT 101.

*Information:* A student may concurrently enroll in WRT 101A, 101B, and 101C.

*Information:* Equivalent to WRT 107B.

Offered: Fall, Spring, Summer.

**WRT 101C Writing I: Module C**

1 cr. hrs. 1 periods (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; or concurrent enrollment in WRT 101A and 101B.

*Information:* WRT 101A, 101B, and 101C together constitute WRT 101.

*Information:* A student may concurrently enroll in WRT 101A, 101B, and 101C.

*Information:* Equivalent to WRT 107C.

Offered: Fall, Spring, Summer.

**WRT 101HC Writing I: Honors**

3 cr. hrs. 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. Honors Content: Intensive research using highest standards and best practices for the discipline, and a significant number/variety of readings of both primary and secondary sources; publishable quality, peer reviewed paper or project in format appropriate for this discipline: presentation of research, in class or to a wider audience.

Offered: Fall, Spring.

**WRT 101P Writing I**

3 cr. hrs. 3 periods (3 lec.)

Principles and practices of college-level writing. Includes using rhetorical principles in analyzing and creating texts, employing critical thinking skills, practicing multiple writing processes, using conventions in creating and revising texts, composing using appropriate technology, and writing college-level essays with an emphasis on argumentation.

**Prerequisite(s):** Placement into WRT100 on the writing assessment.

**Corequisite(s):** WRT 194

*Information:* Equivalent to WRT101. For students who assess into WRT 100 but believe that with additional studio instruction they can successfully complete WRT 101.

Offered: Fall, Spring.

**WRT 101S Writing I / Integrated Studio**

4 cr. hrs. 4.5 periods (3.5 lec., 1 lab)

Principles and practices of college-level writing. Includes using rhetorical principles in analyzing and creating texts, employing critical thinking skills, practicing multiple writing processes, using conventions in creating and revising texts, using appropriate technology, and writing college-level essays with an emphasis on argumentation. Integrates an intensive studio component that includes specific strategies designed to improve student performance and success.

**Prerequisite(s):** Placement into WRT100 on the writing assessment.

*Information:* Equivalent to WRT101. For students who assess into WRT100 but believe that with additional studio instruction they can successfully complete WRT101.

Offered: Fall, Spring.

**WRT 102 Writing II SUN# ENG 1102**

3 cr. hrs. 3 periods (3 lec.)

Continuation of WRT 101. Includes reading, analyzing, and discussing various types of text; writing analytical or critical papers; and developing research skills. Also includes writing a research paper.

**Prerequisite(s):** WRT 101 or 107 with a C or better.

Offered: Fall, Spring, Summer.

**WRT 102A Writing II: Module A**

1 cr. hrs. 1 periods (1 lec.)

Module A constitutes approximately the first one-third of WRT 102.

**Prerequisite(s):** WRT 101 or 107 with a C or better.

*Information:* WRT 102A, 102B and 102C together constitute WRT 102.

*Information:* A student may concurrently enroll in WRT 102A, 102B and 102C.

*Information:* Equivalent to WRT 108A.

Offered: Fall, Spring, Summer.

**WRT 102B Writing II: Module B**

1 cr. hrs. 1 periods (1 lec.)

Module B constitutes approximately the second one-third of WRT 102.

**Prerequisite(s):** WRT 102A with a C or better, or concurrent in WRT 102A.

*Information:* WRT 102A, 102B and 102C together constitute WRT 102A.

*Information:* A student may concurrently enroll in WRT 102A, 102B, and 102C.

*Information:* Equivalent to WRT 108B.

Offered: Fall, Spring, Summer.

**WRT 102C Writing II: Module C**

1 cr. hrs. 1 periods (1 lec.)

Module C constitutes approximately the third one-third of WRT 102.

**Prerequisite(s):** WRT 102B with a C or better, or concurrent enrollment in WRT 102A and 102B.

*Information:* WRT 102A, 102B and 102C together constitute WRT 102.

*Information:* A student may concurrently enroll in WRT 102A, 102B and 102C.

*Information:* Equivalent to WRT 108C.

Offered: Fall, Spring, Summer.

**WRT 102HC Writing II: Honors**

3 cr. hrs. 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. Honors Content: Intensive research using highest standards and best practices for the discipline, and a significant number/variety of readings of both primary and secondary sources; publishable quality, peer reviewed paper or project in format appropriate for this discipline: presentation of research, in class or to a wider audience.*

Offered: Spring.

**WRT 106 Writing Fundamentals for Non-Native Speakers of English**

3 cr. hrs. 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, one of 500 to 750 words.

**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.*

*Information: Equivalent to WRT 100.*

Offered: Fall, Spring, Summer.

**WRT 106A Writing Fundamentals for Non-Native Speakers of English: Module A**

1 cr. hrs. 1 periods (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.*

*Information: A student may concurrently enroll in WRT 106A, 106B, and 106C.*

*Information: Equivalent to WRT 100A.*

Offered: Fall, Spring, Summer.

**WRT 106B Writing Fundamentals for Non-Native Speakers of English: Module B**

1 cr. hrs. 1 periods (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.

*Information: WRT 106A, 106B, and 106C together constitute WRT 106.*

*Information: A student may concurrently enroll in WRT 106A, 106B, and 106C.*

*Information: Equivalent to WRT 100B.*

Offered: Fall, Spring, Summer.

**WRT 106C Writing Fundamentals for Non-Native Speakers of English: Module C**

1 cr. hrs. 1 periods (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; or concurrent enrollment in WRT 106A and 106B.

*Information: WRT 106A, 106B, and 106C together constitute WRT 106.*

*Information: A student may concurrently enroll in WRT 106A, 106B, and 106C.*

*Information: Equivalent to WRT 100C.*

Offered: Fall, Spring, Summer.

**WRT 107 Writing I for Non-Native Speakers of English**

3 cr. hrs. 3 periods (3 lec.)

Continuation appropriate for non-native speakers of English. Includes writing college level essays, review of basic writing skills, and written works including a variety of essay types with an emphasis on argumentation, and documented inquiry.

**Prerequisite(s):** WRT 100 or 106 with a C or better, or required score on the Writing assessment test.

*Information: WRT 107A, 107B, and 107C together constitute WRT 107.*

*Information: Equivalent to WRT 101.*

Offered: Fall, Spring.

**WRT 107A Writing I for Non-Native Speakers of English: Module A**

1 cr. hrs. 1 periods (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.

*Information:* A student may concurrently enroll in WRT 107A, 107B, and 107C.

*Information:* Equivalent to WRT 101A.

Offered: Fall, Spring, Summer.

**WRT 107B Writing I for Non-Native Speakers of English: Module B**

1 cr. hrs. 1 periods (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.

*Information:* WRT 107A, 107B, and 107C together constitute WRT 107.

*Information:* A student may concurrently enroll in WRT 107A, 107B, and 107C.

*Information:* Equivalent to WRT 101B.

Offered: Fall, Spring, Summer.

**WRT 107C Writing I for Non-Native Speakers of English: Module C**

1 cr. hrs. 1 periods (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; or concurrent enrollment in WRT 107A and 107B.

*Information:* WRT 107A, 107B, and 107C together constitute WRT 107.

*Information:* A student may concurrently enroll in WRT 107A, 107B, and 107C.

*Information:* Equivalent to WRT 101C.

Offered: Fall, Spring, Summer.

**WRT 108 Writing II for Non-Native Speakers of English**

3 cr. hrs. 3 periods (3 lec.)

Continuation of WRT 107 appropriate for non-native speakers of English. Includes reading, analyzing, and discussing various types of text; writing analytical or critical papers; and developing research skills. Also includes writing a research paper.

**Prerequisite(s):** WRT 101 or 107 with a C or better.

*Information:* Equivalent to WRT 102.

Offered: Fall, Spring.

**WRT 108A Writing for Non-Native Speakers of English: Module A**

1 cr. hrs. 1 periods (1 lec.)

Module A constitutes approximately the first one-third of WRT 108.

**Prerequisite(s):** WRT 101 or 107 with a C or better.

*Information:* WRT 108A, 108B and 108C together constitute WRT 108.

*Information:* A student may concurrently enroll in WRT 108A, 108B and 108C.

*Information:* Equivalent to WRT 102A.

Offered: May not be offered this year, check class schedule.

**WRT 108B Writing II for Non-Native Speakers of English: Module B**

1 cr. hrs. 1 periods (1 lec.)

Module B constitutes approximately the second one-third of WRT 108.

**Prerequisite(s):** WRT 108A with a C or better, or concurrent enrollment in WRT 108A.

*Information:* WRT 108A, 108B and 108C together constitute WRT 108.

*Information:* A student may concurrently enroll in WRT 108A, 108B and 108C.

*Information:* Equivalent to WRT 102B.

Offered: May not be offered this year, check class schedule.

**WRT 108C Writing II for Non-Native Speakers of English: Module C**

1 cr. hrs. 1 periods (1 lec.)

Module C constitutes approximately the third one-third of WRT 108.

**Prerequisite(s):** WRT 108B with a C or better, or concurrent enrollment in WRT 108A and 108B.

*Information:* WRT 108A, 108B and 108C together constitute WRT 108.

*Information:* A student may concurrently enroll in WRT 108A, 108B and 108C.

*Information:* Equivalent to WRT 102C.

*Offered:* May not be offered this year, check class schedule.

**WRT 125 Beginning Poetry Writing**

3 cr. hrs. 3 periods (3 lec.)

Poetry for beginners. Includes beginning poetry writing techniques, beginning evaluation and critical response to poems, and beginning original writing.

*Information:* May be taken three times for a maximum of nine credit hours.

*Offered:* Fall, Spring, Summer.

**WRT 126 Basics of Short Story Writing**

3 cr. hrs. 3 periods (3 lec.)

Short fiction writing for beginners. Includes beginning fiction writing techniques, beginning critical responses to fiction, and beginning original writing.

*Information:* May be taken three times for a maximum of nine credit hours.

*Offered:* Fall, Spring, Summer.

**WRT 140 Writing and Editing Technical Communications**

3 cr. hrs. 3 periods (3 lec.)

Introduction to basic concepts and techniques for writing and editing technical documents. Includes sentence structure and style; common grammar, usage, and punctuation rules; paragraph structure; common style-level problems; advanced writing-style concepts; editing in document development, publication, and use; editing technical reports; and writing a technical document.

**Prerequisite(s):** WRT 101 or 107 with a grade of C or better.

*Offered:* Fall, Spring.

**WRT 154 Career Communications**

3 cr. hrs. 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.

*Information:* WRT 154A, 154B, and 154C together constitute WRT 154.

*Offered:* Spring.

**WRT 154A Career Communication: Job Related Writing Principles and Skills**

1 cr. hrs. 1 periods (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.

*Information:* A student may concurrently enroll in WRT 154A, 154B, and 154C.

*Offered:* May not be offered this year, check class schedule.

**WRT 154B Career Communications: Basic Job Related Correspondence**

1 cr. hrs. 1 periods (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.

*Information:* WRT 154A, 154B, and 154C together constitute WRT 154.

*Information:* A student may concurrently enroll in WRT 154A, 154B, and 154C.

*Offered:* May not be offered this year, check class schedule.

**WRT 154C Career Communications: Basic Job Related Reports**

1 cr. hrs. 1 periods (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; or concurrent enrollment in WRT 154A and 154B.

*Information:* WRT 154A, 154B, and 154C together constitute WRT 154.

*Information:* A student may concurrently enroll in WRT 154A, 154B, and 154C.

*Offered:* May not be offered this year, check class schedule.

**WRT 162 Literary Magazine Workshop**

3 cr. hrs. 3 periods (3 lec.)

Creative magazine publication. Includes review of college literary magazines, critical review, magazine design and editing, magazine production techniques, as well as printing and distribution.

*Information:* May be taken two times for a maximum of six credit hours.

*Offered:* Spring.

**WRT 194 Writing Studio**

1 cr. hrs. 1.5 periods (.5 lec., 1 lab)

Supplemental writing studio for sections of Writing 101P. Includes writing strategies designed to improve student performance and success in Writing 101P.

**Prerequisite(s):** Placement into WRT 100 on the writing assessment.

**Corequisite(s):** WRT 101P

*Information:* For students who assess into WRT 100 but believe that with additional studio instruction they can successfully complete WRT 101. This is a required co-requisite for WRT101P. WRT101 is equivalent to WRT101P.

*Offered:* Fall, Spring, Summer.

**WRT 196 Independent Studies in Writing**

1-4 cr. hrs. 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 cr. hrs. 3 periods (3 lec.)

Writing contemporary poetry. Includes poetry writing techniques, 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 cr. hrs. 3 periods (3 lec.)

Short fiction writing. Includes fiction writing techniques, critical responses to fiction, and original writing.

**Prerequisite(s):** WRT 102 or 108 with a C or better.

*Offered:* Fall, Spring.

**WRT 207 Creative Nonfiction**

3 cr. hrs. 3 periods (3 lec.)

Creative nonfiction writing. Includes techniques of creative nonfiction writing, original writing, and critical responses to nonfiction.

**Prerequisite(s):** WRT 102 with a grade of C or better.

*Information:* Consent of instructor is required to enroll in this course.

*Offered:* Fall, Spring.

**WRT 215 Advanced Poetry Writing**

3 cr. hrs. 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. May be taken four times for a maximum of twelve credit hours.

*Offered:* Spring.

**WRT 216 Advanced Fiction Writing**

3 cr. hrs. 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.

*Information:* May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**WRT 217 Advanced Creative Nonfiction**

3 cr. hrs. 3 periods (3 lec.)

Advanced techniques of creative nonfiction writing. Includes advanced original writing, advanced critical responses to nonfiction, and marketing techniques.

**Prerequisite(s):** WRT 207 with a grade of C or better.

*Information:* Consent of instructor is required to enroll in this course.

*Information:* May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**WRT 226 Special Projects in Fiction**

3 cr. hrs. 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.

*Information:* May be taken four times for a maximum of twelve credit hours.

Offered: Fall, Spring.

**WRT 254 Advanced Professional Communications**

3 cr. hrs. 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, presentations, and use of appropriate style.

**Prerequisite(s):** WRT 102 or 108 with a C or better.

*Information:* WRT 254A, 254B, and 254C together constitute WRT 254.

Offered: Spring.

**WRT 254A Advanced Professional Communications: Module A**

1 cr. hrs. 1 periods (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.

*Information:* A student may concurrently enroll in WRT 254A, 254B, and 254C.

Offered: May not be offered this year, check class schedule.

**WRT 254B Advanced Professional Communications: Module B**

1 cr. hrs. 1 periods (1 lec.)

Constitutes approximately the second one-third of WRT 254.

**Prerequisite(s):** WRT 254A with a C or better, or concurrent enrollment.

*Information:* WRT 254A, 254B, and 254C together constitute WRT 254.

*Information:* A student may concurrently enroll in WRT 254A, 254B, and 254C.

Offered: May not be offered this year, check class schedule.

**WRT 254C Advanced Professional Communications: Module C**

1 cr. hrs. 1 periods (1 lec.)

Constitutes approximately the third one-third of WRT 254.

**Prerequisite(s):** WRT 254B with a C or better, or concurrent enrollment; or concurrent enrollment in WRT 254A and 254B.

*Information:* WRT 254A, 254B, and 254C together constitute WRT 254.

*Information:* A student may concurrently enroll in WRT 254A, 254B, and 254C.

Offered: May not be offered this year, check class schedule.

**WRT 281 Beginning Workshop in Tutoring Composition**

1 cr. hrs. 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 cr. hrs. 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 cr. hrs. 2 periods (2 lec.)

Writing of fiction, nonfiction, poetry, and stories for children. 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.

*Information: May be taken five times for a maximum of ten credit hours.*

*Offered: May not be offered this year, check class schedule.*



# Other Educational Programs

Workforce Response Programs  
Apprentice-Related Instruction  
Center for Training and Development (CTD) 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 Workforce and Business Development for more information – (520) 206-6569

## Building and Construction

### HVAC Retrofit — 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>		
BCT 100	Professionalism in Service for BCT.....	1
BCT 106*	Soldering and Brazing for BCT.....	4
BCT 111	Basic Safety for the Building Trades.....	1
BCT 112	Construction Mathematics, Communication and Employability.....	1
BCT 113	Hand and Power Tools.....	1
BCT 114	Blueprint Reading.....	1
BCT 115	Basic Rigging.....	1
BCT 130	EPA Clean Air Act: Section 068.....	1
BCT 132*	Residential and Industrial HVAC I.....	4
BCT 133*	Residential and Industrial HVAC II.....	4
BCT 134*	Residential and Industrial HVAC III.....	4
GTM 105*	Applied Technical Math.....	3
GTW 101*	Writing for Trades and Technical Occupations.....	3
<b>Total credits as displayed.....</b>		<b>29</b>

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

### Production Machinist — 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>		
CAD 117	Print Reading with CAD for Manufacturing.....	4
GTM 105*	Applied Technical Math.....	3
GTW 101*	Writing for Trades and Technical Occupations.....	3
MAC 100	Introduction to Machine Tool.....	3
MAC 110	Manual Machine Shop.....	4
MAC 120*	Manual Machine Shop Advanced Procedures.....	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I.....	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II.....	4
<b>Total credits as displayed.....</b>		<b>29</b>

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

### Welding — 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>		
GTM 105*	Applied Technical Math.....	3
GTW 101*	Writing for Trades and Technical Occupations.....	3
WLD 110	Basic Arc and Oxyacetylene Welding.....	4
WLD 115*	Blueprint Reading and Estimating.....	4

WLD 160*	Arc Welding.....	4
WLD 261*	Gas Metal Arc Welding.....	4
<b>Total credits as displayed.....</b>		<b>22</b>

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

## 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.

### 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 skills that 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.

Course lists for each General Education category listed below can be found starting on page 56.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	6
Computer and Information Literacy Requirement .....	1-3
<b>Subtotal .....</b>	<b>19-21</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

#### 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.

### 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.

Course lists for each General Education category listed below can be found starting on page 56.

Communication Requirement.....	3
Analysis and Critical Thinking Requirement.....	3
<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.

Technical Electives .....	16-59
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Complete 16-59 credit hours from Business or Industry Technical courses with the approval of a faculty advisor or instructional dean.

## 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>

## Basic Business and Industry Technology – Legal Compliance — 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>		
HRS 101	Introduction to Human Resources Management.....	3
HRS 102	Human Resources Law.....	3
<b>Total credits as displayed.....</b>		<b>6</b>

## Basic Business and Industry Technology – Selection and Retention — 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>		
HRS 103	Benefits and Compensation.....	3
HRS 104	Job Requirements, Recruitment and Personnel Selection.....	3
<b>Total credits as displayed.....</b>		<b>6</b>

## Basic Business and Industry Technology – Employee Operations — 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>		
HRS 105	Training and Development.....	3
HRS 106	Labor Relations.....	3
<b>Total credits as displayed.....</b>		<b>6</b>

## Basic Business and Industry Technology – Supervision — 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>		
BMT 102A	Introduction to Supervision: Management.....	0.25-0.50
BMT 102B	Introduction to Supervision: Project Management.....	0.50-1.50
BMT 102C	Introduction to Supervision: Verbal Communications.....	0.50-1.50
BMT 102D	Introduction to Supervision: Teams at Work.....	0.50-1.50
BMT 102E	Introduction to Supervision: Diversity, Coaching, Mentoring.....	0.50-1.50
BMT 102F	Introduction to Supervision: Performance Management.....	0.50-1.50
BMT 102G	Introduction to Supervision: Human Resources Legal Issues.....	0.50-1.50
BMT 102H	Introduction to Supervision: Critical Thinking and Decisions.....	0.50-1.50

Electives: Select .05 - 2.0 credits from the following:

BMT 102I	Introduction to Supervision: Time Management.....	0.25
BMT 102K	Introduction to Supervision: Change Management.....	0.25
BMT 102L	Introduction to Supervision: Conflict Management.....	0.25
BMT 102M	Introduction to Supervision: Employee Selection.....	0.25
BMT 102N	Introduction to Supervision: Workplace Writing.....	0.25
BMT 102O	Introduction to Supervision: Employee Development and Training.....	0.25
BMT or BFS	Department Electives.....	0.50-2.00
<b>Total credits as displayed.....</b>		<b>4.25-13.00</b>

## Basic Business and Industry Technology – Sustainability for Building Trades — 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>		
BCT 265	Sustainability for Building Trades .....	3
GTM 105	Applied Technical Mathematics .....	3
<b>Total credits as displayed.....</b>		<b>6</b>

## 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>

## 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.

### 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>

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

# Emergency Medical Technology

## Emergency Medical Technology — Paramedic Certificate for Direct Employment

The paramedic certificate program increases the knowledge and skills 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.

Course lists for each General Education category listed below can be found starting on page 56

Communication Requirement.....	3
Analysis and Critical Thinking Requirement.....	3
<b>Subtotal .....</b>	<b>6</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

### 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.....	1
EMT 205*	ALS Pharmacology and Medication Administration.....	3
EMT 214*	ALS Advanced Special Considerations .....	2.5
EMT 218*	Paramedic National Registry Preparatory Course.....	3.5
EMT 219*	ALS Foundations .....	1.5
EMT 221*	ALS Airway and Ventilation.....	1.5
EMT 222*	ALS Patient Assessment and Assessment Based Management.....	1.5
EMT 223*	ALS Trauma Emergencies and Systems .....	2
EMT 224*	ALS Medical Emergencies.....	4
EMT 225*	ALS Special Medical Considerations.....	2
EMT 227LC*	ALS Practicum: Clinical Lab .....	3
EMT 228LC*	ALS Practicum: Vehicular Lab .....	3
EMT 230*	Basic ECG Interpretation .....	1.5
EMT 242*	ALS Advanced Foundations.....	2
EMT 244*	ALS Advanced Medical Emergencies .....	2.5
EMT 247LC*	ALS Advanced Practicum: Clinical Lab .....	2
EMT 248LC*	ALS Advanced Practicum: Vehicular Lab.....	3
EMT 250*	Advanced Cardiac Care.....	1.5
EMT 252* or EMT 258*	Pediatric Advanced Life Support Pediatric Education for Pre-Hospital Professionals .....	1.5
EMT 254*	Advanced ECG Interpretation .....	3
EMT 263*	Tox-Medic .....	1.5
EMT 295*	ALS Independent Research.....	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.

# 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 — Certificate for Direct Employment

Learn the skills necessary to become a law enforcement officer with courses in ethics, criminal investigation, police proficiencies and law. This certificate is designed for individuals working in a law enforcement position. The courses are scheduled based on agency requirements.

### 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)

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.

Course lists for each General Education category listed below can be found starting on page 56.

Communication Requirement.....	3
Analysis and Critical Thinking Requirement.....	3
<b>Subtotal .....</b>	<b>6</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

### Required Core Courses - A grade of C or better is required for graduation.

LEN 105	Ethics and Leadership in Law Enforcement .....	3
LEN 110	Multicultural Issues in Law Enforcement .....	3
LEN 115	Interpersonal Relations in Law Enforcement.....	3
LEN 120	Introduction to Law Enforcement .....	1
LEN 125	Law and Legal Matters I.....	3
LEN 126	Law and Legal Matters II .....	3
LEN 130	Patrol Procedures.....	3
LEN 135	Traffic Enforcement and Investigation .....	3
LEN 140	Criminal Investigation.....	4
LEN 145	Community and Police Relations .....	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>

## Law Enforcement — Associate of Applied Science

### General Education Requirements - A grade of C or better is required for graduation.

Course lists for each General Education category listed below can be found starting on page 56.

Communication Requirement.....	6
Analysis and Critical Thinking Requirement.....	6
Humanities and Social Science Requirement .....	3
AJS 225 fulfills 3 credits of this requirement. Complete a course from the Humanities/Fine Arts or the Leadership/Ethics category	
Computer Information and Literacy Requirement .....	1-3
<b>Subtotal .....</b>	<b>16-18</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

### Required Core Courses - A grade of C or better is required for graduation.

#### Law Enforcement Concentration

LEN 105	Ethics and Leadership in Law Enforcement .....	3
LEN 110	Multicultural Issues in Law Enforcement .....	3
LEN 115	Interpersonal Relations in Law Enforcement.....	3
LEN 120	Introduction to Law Enforcement .....	1
LEN 125	Law and Legal Matters I .....	3
LEN 126	Law and Legal Matters II .....	3
LEN 130	Patrol Procedures .....	3
LEN 135	Traffic Enforcement and Investigation.....	3
LEN 140	Criminal Investigation .....	4
LEN 145	Community and Police Relations .....	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>	

#### Required Support Courses

AJS 101	Introduction to Administration of Justice Systems .....	3
AJS 225	Criminology .....	3
<b>Subtotal .....</b>	<b>6</b>	
<b>Total Credits as Displayed.....</b>	<b>69-71§</b>	

## 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
---------------	--------------	--------------

### 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
BMS 134	Leadership Development.....	1.50
BMS 138	Presentation Skills .....	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 businesses in growing their own next generation of management. This certificate will work to turn good employees into great employees. This series of courses touches 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>

# Water and Wastewater

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

Learn operations and skills in wastewater technology including bio-solids treatment and biological treatment processes, collection systems, management, maintenance, math, and disinfection treatment.

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 110	Wastewater Collection Systems Operations and Maintenance I .....	3
WAT 124	Wastewater Applied Mathematics .....	4
WAT 126	Wastewater Biological Treatment Process .....	4
WAT 128	Wastewater Disinfection, Chlorination, De-Chlorination, and Effluent Monitoring .....	3
WAT 130	Wastewater Operations: Bio-Solids Treatment, Management, and Handling .....	4
<b>Total Credits as Displayed .....</b>		<b>18</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 Mathematics .....	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 wastewater operations, collection, treatment, maintenance, and safety skills. This certificate helps prepare employees to meet Arizona State Wastewater Operator Certification requirements.

Information: Students should complete the Wastewater Operations and Wastewater Treatment Certificate prior to taking this certificate or should be able to 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 .....	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. By completing this certificate, good employees can become great employees. This series of courses touches 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 Credits as Displayed.....</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.

<b>Agency</b>	<b>Phone Number</b>	<b>Course Prefix</b>
Sheet Metal Workers Local Union 359 Sheet Metal	(602) 273-1388 or (602) 920-2834	SMA
National Tooling and Machining Association (NTMA) Contact Division Dean of Industrial and Technical Education at PCC Machinist	(520) 206-7134	MAC
Arizona Builders Alliance (ABA) Electrical, Carpentry, Building and Construction	(520) 881-7930	BCT
Pascua Yaqui Training and Development 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. The college technical courses must be approved by the department chair.

# Center for Training and Development (CTD) Programs

Pima Community College’s Center for Training and Development (CTD) provides high quality training leading to immediate jobs or to job advancement in many in-demand fields. Since 1963, CTD has trained more than 40,000 individuals who wanted to gain new employment, improve their skills in their current jobs or move up the career ladder in their fields. Students learn entry-level skills or upgrade existing knowledge through training classes that provide classroom instruction, hands-on lab learning, and internships and externships. CTD boasts a 90% completion rate and an 85% job placement rate.

The Center’s non-traditional training options allow students to attend in an open-entry/open-exit enrollment year-round up to 30 hours a week during days, evenings or weekends. Each student receives a certificate at the conclusion of their training. CTD offers programs for credit, noncredit, clock-hour, and continuing education units (CEUs). Noncredit and CEU options are available in many areas; for a current list, contact CTD. Credit program information is found under the credit programming section of the catalog.

CTD clock-hour certificate programs are found below. Additional clock-hour programming may be available; please contact the Center for Training and Development for most current programming information. Clock-hour offerings provide students with a method for accessing immediate employment skills related to specific occupational areas. They require student attendance as well as completion of competencies related to the career field. Clock-hour programming is offered in a variety of methods depending on the career path; it provides intensive instruction in the career field, contains integrated academic and life success skills, and provides comprehensive student support services.

Clock-hour programs have various admissions requirements depending on the programming area. COMPASS testing is required for most certificates. Please contact the Center for Training and Development for details on specific admissions requirements for each program area.

## Business and Office

### Accounting Assistant – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDACCOUNTIN.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 701A	Document Formatting I.....	30
BO 706	Business Calculation I.....	30
BO 708	Principles of Accounting I.....	20
BO 709	Microsoft Word I.....	25
BO 710F	Office Practice for Accounting.....	83
BO 718	Microsoft Excel I.....	35
BO 719	Microsoft Access I.....	35
BO 750	Keyboard Operator.....	80
BO 760	Microsoft Windows.....	30
BO 800	Business English.....	20
BO 801A	Document Formatting II.....	50
BO 806	Business Calculation II.....	20
BO 807B	Recordkeeping for Accounting.....	36
BO 808	Principles of Accounting II.....	80
BO 809	Microsoft Word II.....	60
BO 810A	Office Practice II.....	76
BO 811	Microsoft Excel II.....	30
BO 906	Business Calculation III.....	12
BO 908	Principles of Accounting III.....	80
BO 913	QuickBooks.....	90
<b>Total for Accounting Assistant Certificate .....</b>		<b>922</b>
<b>Optional module:</b>		
BO 812	Microsoft Access II.....	30
BO 992A	Accounting Assistant Externship.....	120
<b>Total with optional module .....</b>		<b>1072</b>

## Administrative Assistant – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDADMINASST.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 760	Microsoft Windows .....	30
BO 830	Office Procedures .....	35
BO 835	Records Management.....	45
BO 840	Business Meeting.....	30
BO 845	Document Preparation.....	30
BO 850	Business Communications .....	45
BO 855	Payroll Records and Procedures .....	30
BO 860	Microsoft Publisher .....	45
BO 919	Machine Transcription .....	15
BO 921	Comprehensive Microsoft Excel.....	105
BO 922	Comprehensive Microsoft Access.....	105
BO 927	Comprehensive Microsoft PowerPoint .....	60
BO 929	Comprehensive Microsoft Word .....	120
<b>Total for Administrative Assistant Certificate .....</b>		<b>695</b>

## CCS-P Test Prep – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Module</b>		
BO 740	CCS-P Test Preparation.....	30
<b>Total for CCS-P Test Prep Certificate .....</b>		<b>30</b>

## Computer Software Applications – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 705	Business Composition.....	24
BO 709	Microsoft Word I.....	25
BO 718	Microsoft Excel I .....	35
BO 719	Microsoft Access I .....	35
BO 760	Microsoft Windows .....	30
BO 800	Business English.....	20
BO 801B	Typing for Computer Software Applications.....	26
BO 809	Microsoft Word II.....	60
BO 811	Microsoft Excel II .....	30
BO 812	Microsoft Access II.....	30
BO 909	Microsoft Word III.....	105
<b>Total for Computer Software Applications Certificate .....</b>		<b>420</b>

## Database Applications – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 719	Microsoft Access I .....	35
BO 760	Microsoft Windows .....	30
BO 812	Microsoft Access II.....	30
<b>Total for Database Applications Certificate .....</b>		<b>95</b>

## Legal Office Support Staff – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDLEGLSUPPT.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 701A	Document Formatting I.....	30
BO 706	Business Calculation I.....	30
BO 709	Microsoft Word I.....	25
BO 710A	Office Practice I.....	75
BO 718	Microsoft Excel I .....	35
BO 719	Microsoft Access I .....	35
BO 750	Keyboard Operator .....	80
BO 760	Microsoft Windows .....	30
BO 800	Business English.....	20
BO 801A	Document Formatting II.....	50
BO 807A	Recordkeeping for Legal Office .....	47
BO 809	Microsoft Word II.....	60
BO 810A	Office Practice II.....	76
BO 810B	Legal Office Practice I.....	75
BO 811	Microsoft Excel II .....	30
BO 812	Microsoft Access II.....	30
BO 901A	Advanced Document Formatting.....	22
BO 909	Microsoft Word III.....	105
BO 910B	Legal Office Practice II.....	75
<b>Total for Legal Office Assistant Certificate .....</b>		<b>930</b>

### Optional modules

BO 917	Microsoft PowerPoint.....	30
BO 919	Machine Transcription .....	15
BO 920	Microsoft Access III.....	30
BO 991A	Legal Office Externship.....	60
<b>Subtotal .....</b>		<b>135</b>
<b>Total with all optional modules.....</b>		<b>1065</b>

## Legal Office Procedures – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 810B	Legal Office Practice I.....	75
BO 910B	Legal Office Practice II.....	75
<b>Total for Legal Office Procedures Certificate .....</b>		<b>150</b>

## Medical Office Clerk – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 700	Basic Office Skills.....	49
BO 711	Medical Insurance .....	30
BO 713	Medical Terminology I.....	18
BO 714	Diagnostic Coding Introduction .....	8
BO 716	Introduction to Procedural Coding.....	15
<b>Total for Medical Office Clerk Certificate.....</b>		<b>120</b>

## Medical Office Specialist – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 701B	Document Formatting for Medical Office Specialist.....	40
BO 709	Microsoft Word I.....	25
BO 710B	Office Practice for Medical Office Specialist I .....	73
BO 711	Medical Insurance .....	30
BO 713	Medical Terminology I.....	18
BO 714	Diagnostic Coding Introduction .....	8
BO 716	Introduction to Procedural Coding.....	15
BO 718	Microsoft Excel I.....	35
BO 719	Microsoft Access I.....	35
BO 750	Keyboard Operator .....	80
BO 760	Microsoft Windows .....	30
BO 800	Business English.....	20
BO 809	Microsoft Word II.....	60
BO 909A	Microsoft Word IIIA.....	15
<b>Total for Medical Office Specialist Certificate.....</b>		<b>484</b>

## Medical Records Technician – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDMEDRECTEC.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 701B	Document Formatting for Medical Office Specialist.....	40
BO 709	Microsoft Word I.....	25
BO 710	Business Office Practices.....	34
BO 710B	Office Practice for Medical Office Specialist I .....	73
BO 710C	Office Practice for Medical Records Technician .....	31
BO 713	Medical Terminology I.....	18
BO 718	Microsoft Excel I.....	35
BO 719	Microsoft Access I.....	35
BO 725	Health Care Statistics.....	30
BO 730	Quality Management .....	30
BO 750	Keyboard Operator .....	80
BO 760	Microsoft Windows .....	30
BO 800	Business English.....	20
BO 809	Microsoft Word II.....	60
BO 813	Medical Terminology II .....	48

BO 814	Intermediate Diagnostic Coding.....	70
BO 815	Intermediate Procedural Coding .....	70
BO 816	3M Computerized Medical Coding .....	30
BO 818	Computerized Patient Accounting.....	30
BO 909A	Microsoft Word IIIA.....	15
BO 992	Medical Office Externship.....	120
<b>Total for Medical Records Certificate.....</b>		<b>924</b>

## Medical Terminology – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 713	Medical Terminology I.....	18
BO 813	Medical Terminology II .....	48
<b>Total for Medical Terminology Certificate .....</b>		<b>66</b>

## Office Assistant I – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 701A	Document Formatting I.....	30
BO 706	Business Calculation I.....	30
BO 709	Microsoft Word I.....	25
BO 710A	Office Practice I.....	75
BO 750	Keyboard Operator .....	80
BO 760	Microsoft Windows .....	30
<b>Total for Office Assistant I .....</b>		<b>270</b>

## Office Assistant II – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDOFASSIST2.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 701A	Document Formatting I.....	30
BO 706	Business Calculation I.....	30
BO 709	Microsoft Word I.....	25
BO 710A	Office Practice I.....	75
BO 718	Microsoft Excel I.....	35
BO 719	Microsoft Access I.....	35
BO 750	Keyboard Operator .....	80
BO 760	Microsoft Windows .....	30
BO 800	Business English.....	20
BO 801A	Document Formatting II.....	50
BO 806	Business Calculation II.....	20
BO 807	Recordkeeping II.....	64
BO 809	Microsoft Word II.....	60
BO 810A	Office Practice II.....	76
<b>Total for Office Assistant II Certificate .....</b>		<b>630</b>



## Office Specialist – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDOFFSPECLT.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 701A	Document Formatting I.....	30
BO 706	Business Calculation I.....	30
BO 709	Microsoft Word I.....	25
BO 710A	Office Practice I.....	75
BO 718	Microsoft Excel I.....	35
BO 719	Microsoft Access I.....	35
BO 750	Keyboard Operator.....	80
BO 760	Microsoft Windows.....	30
BO 800	Business English.....	20
BO 801A	Document Formatting II.....	50
BO 806	Business Calculation II.....	20
BO 807	Recordkeeping II.....	64
BO 809	Microsoft Word II.....	60
BO 810A	Office Practice II.....	76
BO 811	Microsoft Excel II.....	30
BO 812	Microsoft Access II.....	30
BO 901A	Advanced Document Formatting.....	22
BO 906	Business Calculation III.....	12
BO 907	Recordkeeping III.....	30
BO 909	Microsoft Word III.....	105
BO 917	Microsoft PowerPoint.....	30
BO 919	Machine Transcription.....	15
<b>Total for Office Specialist Certificate .....</b>		<b>904</b>
<b>Optional modules</b>		
BO 920	Microsoft Access III.....	30
BO 991	Office Practice Externship.....	60
<b>Total with optional modules.....</b>		<b>994</b>

## Professional Medical Coding Specialist– Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
BO 710D	Office Practice for Coders.....	5
BO 713	Medical Terminology I.....	18
BO 814	Intermediate Diagnostic Coding.....	70
BO 815	Intermediate Procedural Coding.....	70
BO 915	Advanced Procedural Coding.....	40
BO 816	3M Computerized Medical Coding.....	30
BO 818	Computerized Patient Accounting.....	30
BO 819	Human Anatomy for Medical Coding.....	7
<b>Total for Professional Medical Coding Specialist Certificate .....</b>		<b>270</b>

# Culinary and Food Industry

## Baker's Helper – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDBKRHELPER.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
FS 705	Sanitation and Safety Fundamentals	60
FS 720	Tools, Utensils and Equipment	75
FS 725	Cold Foods-Salads and Dressings	90
FS 765	Culinary Principles-Terminology, Record Keeping, and Service	40
FS 865	Culinary Principles-Advanced Record Keeping	60
FS 900	Food Service Externship	60
FS 901	Sanitation and Regulatory Issues	30
FS 910	Bakery-Quick Breads	120
FS 920	Bakery-Yeast Doughs	175
FS 930	Bakery-Cakes, Cookies, Pies	160
FS 970	Bakery-Sauces and Fillings	30
<b>Total for Baker's Helper Certificate</b>		<b>900</b>

## Cook's Helper – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDCOOKHLPER.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
FS 705	Sanitation and Safety Fundamentals	60
FS 720	Tools, Utensils, and Equipment	75
FS 725	Cold Foods-Salads and Dressings	90
FS 745	Hot Foods-Vegetables, Starches, Pastas, and Grains	60
FS 760	Hot Foods-Stocks, Sauces, and Soups	80
FS 765	Culinary Principles-Terminology, Record Keeping, and Service	40
FS 770	Hot Foods-Introduction to Meat and Seafood Cookery	60
FS 845	Knife Skills	60
FS 850	Hot Foods-Breakfast Cookery	30
FS 885	Hot Foods-Intermediate Meat and Seafood Cookery	60
FS 900	Food Service Externship	60
FS 901	Sanitation and Regulatory Issues	30
<b>Total for Cook's Helper Certificate</b>		<b>705</b>

## Kitchen Helper – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
FS 705	Sanitation and Safety Fundamentals	60
FS 720	Tools, Utensils, and Equipment	75
FS 725	Cold Foods-Salads and Dressings	90
FS 735	Introduction to Hot Foods	70
FS 765	Culinary Principles-Terminology, Record Keeping, and Service	40
<b>Total for Kitchen Helper Certificate</b>		<b>335</b>

## Pantry Cook – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
FS 705	Sanitation and Safety Fundamentals .....	60
FS 720	Tools, Utensils and Equipment .....	75
FS 725	Cold Foods-Salads and Dressings.....	90
FS 745	Hot Foods-Vegetables, Starches, Pastas, and Grains.....	60
FS 765	Culinary Principles-Terminology, Record Keeping, and Service .....	40
FS 770	Hot Foods-Introduction to Meat, Seafood Cookery.....	60
FS 845	Knife Skills .....	60
FS 850	Hot Foods-Breakfast Cookery.....	30
FS 925	Cold Foods-Garde Manger Skills.....	130
<b>Total Pantry Cook Certificate.....</b>		<b>605</b>

## Pre-Apprentice Culinary Skills – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDPACULSKIL.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
FS 705	Sanitation and Safety Fundamentals .....	60
FS 720	Tools, Utensils, and Equipment .....	75
FS 725	Cold Foods-Salads and Dressings.....	90
FS 745	Hot Foods-Vegetables, Starches, Pastas, and Grains.....	60
FS 760	Hot Foods-Stocks, Sauces, and Soups.....	80
FS 765	Culinary Principles-Terminology, Record Keeping, and Service .....	40
FS 770	Hot Foods-Introduction to Meat and Seafood Cookery.....	60
FS 845	Knife Skills .....	60
FS 850	Hot Foods-Breakfast Cookery.....	30
FS 865	Culinary Principles-Advanced Record Keeping .....	60
FS 885	Hot Foods-Intermediate Meat and Seafood Cookery .....	60
FS 901	Sanitation and Regulatory Issues .....	30
FS 985	Hot Foods-Advanced Meat and Seafood Cookery .....	135
FS 997	Food Service Pre-Apprentice Externship .....	160
<b>Total for Pre-Apprentice Culinary Skills Certificate .....</b>		<b>1000</b>

## Preparation Cook – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDPREPTCOOK.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
FS 705	Sanitation and Safety Fundamentals .....	60
FS 720	Tools, Utensils, and Equipment .....	75
FS 725	Cold Foods-Salads and Dressings.....	90
FS 745	Hot Foods-Vegetables, Starches, Pastas, and Grains.....	60
FS 760	Hot Foods-Stocks, Sauces, and Soups.....	80
FS 765	Culinary Principles-Terminology, Record Keeping, and Service .....	40
FS 770	Hot Foods-Introduction to Meat and Seafood Cookery.....	60
FS 845	Knife Skills .....	60
FS 850	Hot Foods-Breakfast Cookery.....	30

FS 865	Culinary Principles-Advanced Record Keeping .....	60
FS 885	Hot Foods-Intermediate Meat and Seafood Cookery .....	60
FS 900	Food Service Externship.....	60
FS 901	Sanitation and Regulatory Issues .....	30
FS 985	Hot Foods-Advanced Meat and Seafood Cookery .....	135
<b>Total for Preparation Cook Certificate.....</b>		<b>900</b>

## Health Occupations

### Surgical Instrument Technician – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDINSTRTECH.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
HO 900	Introduction to Surgical Technology I.....	86
or HO 900A	Professional Responsibilities and Relations.....	6
and HO 900B	Environmental and Work Place Safety .....	6
and HO 900C	Introduction to Microbiology, Infection, and Immunology.....	29
and HO 900D	Wound Healing.....	6
and HO 900E	Pharmacology and Anesthesia.....	39
HO 910	Introduction to Surgical Technology II.....	45
or HO 910A	Aseptic Technique .....	10
and HO 910B	Patient Care.....	20
and HO 910C	Surgical Instrumentation .....	15
HO 920	Anatomy and Physiology of Skin, Muscle, and Skeletal .....	96
HO 922	Anatomy and Physiology of Nerves, Senses, and Endocrine.....	96
HO 924	Anatomy and Physiology of Blood, Heart, Vessels, and Lymph.....	96
HO 926	Anatomy and Physiology of Respiratory and Digestive .....	55
HO 928	Anatomy and Physiology of Urinary and Reproductive .....	55
HO 930	Surgical Procedures .....	96
or HO 930A	General Surgical Procedures.....	12
and HO 930B	Obstetrics and Gynecology Surgery.....	12
and HO 930C	Eye, Ear, Nose, and Throat (EENT) Surgery.....	12
and HO 930D	Plastic and Reconstructive Surgery.....	12
and HO 930E	Genitourinary Surgery .....	12
and HO 930F	Orthopaedic Surgery.....	12
and HO 930G	Thoracic and Peripheral Vascular Surgery .....	12
and HO 930H	Cardiac and Neurology Surgery .....	12
HO 940	Communication and Computers for Surgical Technologists .....	40
or HO 940A	Interpersonal Relationships for Surgical Technologists.....	12
and HO 940B	Ethical and Legal Considerations.....	16
and HO 940C	Computers .....	12
HO 941	Electricity .....	30
HO 942	Physics for Surgical Technologists .....	27
HO 943	Robotics for Surgical Technologists .....	24
<b>Total for Surgical Instrument Technician Certificate .....</b>		<b>746</b>

## Surgical Technologist – Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDSURGITTECH.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
HO 900	Introduction to Surgical Technology I.....	86
or HO 900A	Professional Responsibilities and Relations.....	6
and HO 900B	Environmental and Work Place Safety.....	6
and HO 900C	Introduction to Microbiology, Infection, and Immunology.....	29
and HO 900D	Wound Healing.....	6
and HO 900E	Pharmacology and Anesthesia.....	39
HO 910	Introduction to Surgical Technology II.....	45
or HO 910A	Aseptic Technique.....	10
and HO 910B	Patient Care.....	20
and HO 910C	Surgical Instrumentation.....	15
HO 920	Anatomy and Physiology of Skin, Muscle, and Skeletal.....	96
HO 922	Anatomy and Physiology of Nerves, Senses, and Endocrine.....	96
HO 924	Anatomy and Physiology of Blood, Heart, Vessels, and Lymph.....	96
HO 926	Anatomy and Physiology of Respiratory and Digestive.....	55
HO 928	Anatomy and Physiology of Urinary and Reproductive.....	55
HO 930	Surgical Procedures.....	96
or HO 930A	General Surgical Procedures.....	12
and HO 930B	Obstetrics and Gynecology Surgery.....	12
and HO 930C	Eye, Ear, Nose, and Throat (EENT) Surgery.....	12
and HO 930D	Plastic and Reconstructive Surgery.....	12
and HO 930E	Genitourinary Surgery.....	12
and HO 930F	Orthopaedic Surgery.....	12
and HO 930G	Thoracic and Peripheral Vascular Surgery.....	12
and HO 930H	Cardiac and Neurology Surgery.....	12
HO 940	Communication and Computers for Surgical Technologists.....	40
or HO 940A	Interpersonal Relationships for Surgical Technologists.....	12
and HO 940B	Ethical and Legal Considerations.....	16
and HO 940C	Computers.....	12
HO 941	Electricity.....	30
HO 942	Physics for Surgical Technologists.....	27
HO 943	Robotics for Surgical Technologists.....	24
HO 950CL	Surgical Technologist Clinical I.....	110
HO 953CL	Surgical Technologist Clinical II.....	110
HO 956CL	Surgical Technologist Clinical III.....	120
HO 990	Surgical Technologist Externship I.....	120
HO 995	Surgical Technologist Externship II.....	120
<b>Total for Surgical Technologist Certificate.....</b>		<b>1326</b>

# Nursing

## Nursing Assistant – Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
HO 810	Nursing Assistant .....	120
<b>Total for Nursing Assistant Certificate .....</b>		<b>120</b>

## RN Refresher - Certificate for Direct Employment

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
HO 723	Registered Nurse (RN) Refresher .....	240
<b>Total for RN Refresher Certificate .....</b>		<b>240</b>

## Practical Nurse - Certificate for Direct Employment

Review program costs, student debt, on-time graduation and more: <http://www.pima.edu/programs-courses/gainful-employment/CTDPRACTNURS.pdf>

Module Number	Course Title	Clock Hours
<b>Required Modules</b>		
HO 810	Nursing Assistant .....	120
HO 818	Introduction to Anatomy and Microbiology .....	150
HO 819	Nursing Care Fundamentals .....	60
HO 861	Introduction to Practical Nursing .....	220
HO 872	Practical Nursing A .....	220
HO 874	Practical Nursing B .....	220
HO 882	Maternal-Child Nursing for the Practical Nurse .....	120
HO 887	Pediatric Nursing for the Practical Nurse .....	120
HO 890	Transition to Practice for the Practical Nurse .....	120
<b>Total for Practical Nurse Certificate .....</b>		<b>1350</b>
<b>Optional Modules</b>		
HO 716	NCLEX-PN Preparation .....	30
<b>Total with optional modules .....</b>		<b>1380</b>

# Selected Policies, Governance and Faculty

## Selected Board Policies

The following policies address the College's compliance with a variety of federal anti-discrimination laws. The College makes every effort to resolve the complaints of persons who feel they have been discriminated against.

For questions concerning the College's Affirmative Action/Equal Opportunity and Harassment policies, the College's unlawful discrimination complaint process, or the College's Americans with Disabilities Act (ADA) process, contact D. Franklin, EEO/AA Officer and ADA Coordinator at 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.

### 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.

### 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 (ADA) Amendments Act**

It is the policy of Pima County Community College District to comply with the Americans with Disabilities Act as amended, and Section 504 of the Rehabilitation Act 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**

	<b>Term Expires</b>
<b>Dr. Brenda B. Even</b>	District 1, Dec. 2014
<b>David Longoria</b>	District 2, Dec. 2016
<b>Dr. Sylvia M. Lee</b>	District 3, Dec. 2018
<b>Scott A. Stewart</b>	District 4, Dec. 2016
<b>Marty Cortez</b>	District 5, Dec. 2018

## **College District Administrators**

**Dr. Lee D. Lambert**, Chancellor

**Dr. Jerry Migler**, Provost and Executive Vice Chancellor for Academic and Student Services

**Dr. David W. Bea**, Executive Vice Chancellor for Finance and Administration

**Dr. Louis Albert**, Campus President, West Campus

**Dr. Johnson Bia**, Campus President, Desert Vista Campus

**Dr. Luba Chliwniak**, Campus President, Downtown Campus

**Charlotte A. Fugett**, Campus President, East Campus

**Vacant**, Campus President, Northwest Campus

**Dr. Suzanne L. Miles**, Campus President, Community Campus

**C. J. Karamargin**, Vice Chancellor for Public Information and Government Relations

**Janet L. May**, Vice Chancellor for Human Resources

**Keith W. McIntosh**, Vice Chancellor for Information Technology

**Bill Ward**, Vice Chancellor for Facilities

## **District Office**

### **Office of the Chancellor**

**Dr. Lee D. Lambert, Chancellor**

B.A. The Evergreen State College; J.D. Seattle University

**Imelda Cuyugan, Assistant Vice Chancellor for State Government Relations**

B.A. Divine Word University (Philippines); M.A. California State University, Northridge

**Deborah Yoklic, Assistant Vice Chancellor**

B.A. Brandeis University; M.A. University of Arizona

**Cheryl M. House, Executive Director, Pima Community College Foundation**

B.S. Bowling Green State University

**Jeffrey S. Silvyn, College General Counsel**

B.A. Johns Hopkins University; J.D. University of California, Los Angeles

### Office of the Provost and Executive Vice Chancellor for Academic and Student Services

#### Dr. Jerry Migler, Provost and Executive Vice Chancellor for Academic and Student Services

B.S., M.S. North Dakota State University; Ph.D. University of Minnesota

#### Dr. Mary Ann Martinez Sanchez, Assistant Vice Chancellor for Academic Services and Vice Provost

B.A. Duke University; M.A., Ph.D. University of Notre Dame

#### Leticia Menchaca, Assistant Vice Chancellor for Student Development

A.A. Pima Community College; B.S., M.Ed. University of Phoenix

#### A. Rachelle Howell, Assistant Vice Chancellor for Grants and Planning and Institutional Research

B.B.A. University of New Mexico; M.B.A. Our Lady of the Lake University

#### Dr. Heather Tilson, Executive Director of Planning and Institutional Research

B.S. East Carolina University; M.B.A. West Chester University; Ph.D. Drexel University

#### Anna M. Reese, Executive Director of Financial Aid

B.A., M.P.A. Fairleigh Dickinson University

#### Edgar Soto, Executive Director of Athletics

B.A. University of New Mexico; M.Ed. Northern Arizona University

#### Vacant, Senior Assistant to the Provost and Executive Vice Chancellor

### Office of the Executive Vice Chancellor for Finance and Administration

#### Dr. David W. Bea, Executive Vice Chancellor for Finance and Administration

B.A. Colgate University; M.A., Ph.D. Claremont Graduate University

#### Diane Groover, Assistant Vice Chancellor for Finance

B.S., M.B.A. University of Arizona; B.S. University of Phoenix

#### William J. Howard, Assistant Vice Chancellor for Business Services

B.A. The Colorado College; M.B.A. Dartmouth College

#### Stella Bay, Executive Director of the Department of Public Safety

B.A. University of Arizona; M.Ed. Northern Arizona University

### Office of the Chief Human Resources Officer

#### Janet L. May, Vice Chancellor for Human Resources

B.A. McMurry University; M.A. New Mexico State University

#### Vacant, Assistant Vice Chancellor for Employee Services

#### Dr. James J. Sanchez, Psychologist

B.A. Purdue University Calumet; M.A., Ph.D. University of Notre Dame

### Office of the Vice Chancellor for Facilities

#### Bill Ward, Vice Chancellor for Facilities

A.A. St. Petersburg College; B.S. Indiana State University

### Office of the Vice Chancellor for Information Technology

#### Keith W. McIntosh, Vice Chancellor for Information Technology

A.A.S. Community College of the Air Force; B.S. Bellevue University; M.B.A. Trident University International

#### Vacant, Assistant Vice Chancellor for Information Technology

### Office of the Vice Chancellor for Public Information and Federal Government Relations

#### C.J. Karamargin, Vice Chancellor for Public Information and Federal Government Relations

A.A. Mitchell College; B.A. University of Connecticut

## Community Campus

#### Dr. Suzanne L. Miles, Campus President

B.A. Northwestern University; M.A. Arizona State University; Ph.D. University of Arizona

#### Dr. Darla Zirbes, Vice President of Instruction

A.A. Bismarck State College; B.S. Moorhead State University; M.Ed. Northern Arizona University; Ph.D. University of Arizona

#### Dr. Anne M. Vosberg, Vice President of Student Development

B.A. Smith College; M.Ed. University of Arizona; Ed.D. Northern Arizona University

#### Stan J. Steinman, Dean of Workforce & Business Development

B.A. University of Arizona; M.P.A. George Washington University

#### Dr. Daniel Wright, Dean of Online Development

B.S. West Virginia University; M.B.A. Pace University; M.S., Ph.D. University of Maryland

#### Vacant, Dean of Adult Education

## Desert Vista Campus

#### Dr. Johnson Bia, Campus President

B.S., M.S. University of Arizona; Ph.D. Iowa State University

#### Ted A. Roush, Vice President of Instruction

B.S. United States Air Force Academy; M.S. Boston University

#### Dr. M. Ann Parker, Vice President of Student Development

B.A. Davidson College; M.Ed. University of Nebraska-Lincoln; M.A., Ph.D. University of Arizona

#### Vacant, Dean of Business and Liberal Arts

## Downtown Campus

#### Dr. Luba Chliwniak, Campus President

B.A., M.Ed., Ph.D. University of Arizona

#### Brigid Murphy, Vice President of Instruction

B.A. Montana State University; M.A. University of Texas

#### Jerry L. Haynes, Vice President of Student Development

B.S. Bowling Green University; M.Ed. Miami University

#### Patricia Houston, Dean of Science and Communication Arts

A.B. Syracuse University; M.A. Universidad de las Americas

#### Dr. Nicola Richmond, Dean of Business, Occupational and Professional Programs

B.S. University of Southampton (England); Ph.D. University College London (England)

## East Campus

### **Charlotte A. Fugett, Campus President**

B.S. Longwood College; M.B.A. University of Richmond

### **Dr. Lorraine Morales, Vice President of Instruction**

B.S. Western New Mexico University; M.A. University of Arizona; Ed.D. Northern Arizona University

### **Dr. Nancee J. Sorenson, Vice President of Student Development**

B.S., M.S. Indiana State University; Ed.D. University of Texas – Austin

### **Nina Corson, Dean of Business, Sciences and Occupations**

B.S. Stephen F. Austin State University; M.A. University of Arizona

## Northwest Campus

### **Vacant, Campus President**

### **Donna Gifford, Vice President of Instruction**

B.A., M.S. University of Arizona

### **Michael Tulino, Vice President of Student Development**

B.S. Northern Arizona University; M.B.A. University of Phoenix

### **John E. Gillis, Dean of Humanities, Social and Behavioral Sciences and Professions**

B.S. Minnesota State University; M.A. University of Minnesota

## West Campus

### **Dr. Louis Albert, Campus President**

B.S. Loyola College of Maryland; M.S., Ph.D. University of Maryland; Doctor of Humane Letters Cuttington University College (honoris causa) (Liberia)

### **Darla Lammers, Vice President of Instruction**

B.A., J.D. University of Arizona

### **Dr. Aubrey Conover, Vice President of Student Development**

B.A. University of Wisconsin, Madison; M.A., Ph.D. University of Arizona

### **Dr. Mary Kay Gilliland, Dean of Science, Technology, Engineering and Mathematics**

B.A. Bryn Mawr College; M.A., Ph.D. University of California San Diego

### **Dr. Mary Beth Ginter, Dean of Business, Computers, Languages and Social Sciences**

B.S. Oakland University; M.A. Eastern Michigan University; Ph.D. University of Arizona

### **Marty Mayhew, Dean of Nursing**

B.S.N. University of Nevada, Las Vegas; M.S.Ed. University of Southern California; M.S.N. University of Colorado

### **Dr. Robert Simpson, Dean of Arts, Communications and Humanities**

B.S. University of Illinois; M.B.A. University of California; M.A., Ph.D. Harvard University

## 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
- Miguel 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 District Office, the College district, and the community.

- Emily McMillin, 1996
- Harold Thompson, 1996

## Pima Community College Faculty

### **Dr. Darla J. Aguilar, Mathematics (1999)**

B.S.Ed. Montana State University; M.A., Ed.D. University of Arizona

### **Dr. Ceanne Alvine, Nursing (2008)**

B.S.N. University of Iowa; M.B.A. Arizona State University; Ph.D. University of Arizona

### **Carmen Amavizca, Writing (1999)**

B.S.Ed., M.Ed., University of Arizona

### **Brooke Anderson, Reading and Writing (2007)**

B.A., M.S. California State University

### **Michele Anderson, Mathematics (2008)**

B.S., M.S. University of Wyoming

### **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

### **Jean Arbogast, Mathematics (2008)**

B.A. California State University; M.S., M.S. University of Wyoming

### **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

### **Dr. Maha Baddar, Writing (2007)**

B.A. Alexandria University; M.A. University of Massachusetts; Ph.D. University of Arizona

### **Dr. Hema Bandaranayake, Biology (2009)**

B.S. University of Peradeniya; Ph.D. University of Maryland

### **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

### **Dr. Kristina Beckman, Writing (2008)**

B.S., M.A., Ph.D. Colorado State University at Fort Collins; M.Ed. Northern Arizona University

### **Sandra M. Bejarano, Biology (1993)**

B.S. University of Arizona; M.Ed. Northern Arizona University

### **James Berger, Librarian (2003)**

B.A., M.A. University of Iowa

### **Bruce Bessette, Aviation (2009)**

A.A.S. Eastern New Mexico 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., M.A., Ph.D., Indiana University

### **Donald C. Bock, Mathematics (2005)**

B.S., M.A., University of Arizona

### **Matej Boguszak, Mathematics (2009)**

B.S., M.A. University of Arizona

### **Joseph M. Brewer, Librarian (2005)**

B.A. University of Arizona; B.S. University of New Mexico; M.L.S. University of Arizona

### **Monica J. Brito, Spanish (1992)**

A.B. St. Francis College; M.A. University of Arizona

### **Dr. Katherine L. Broneck, Business (2005)**

B.A. University of Illinois; M.A., Ph.D. University of Arizona

### **Gigi D. Brown, Design (1990)**

B.S. University of Arizona; M.Ed. Northern Arizona University

### **Theresa A. Brown, Computer Software Applications (2000)**

A.A.S. Spokane Community College; B.A., B.A. Eastern Washington University; M.A. University of Arizona

### **Galen Brubaker, Building & Construction 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

### **April Burge, Writing (2008)**

B.A. Northwest Missouri State University; M.A. Northern Arizona University

### **Dr. Lonnie D. Burke, Chemistry (2006)**

A.A. Orange Coast College; B.S., Ph.D. University of California-Irvine

### **Ellen F. Caldwell, Mathematics (1983)**

A.B. Randolph Macon Women's College; M.S. University of Wyoming

### **Dr. Teresa Campbell, Business (1998)**

B.S.B.A., M.S., Ph.D. University of Arizona

### **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

### **Roman A. Carrillo, Automotive Technology (2011)**

A.A.S. Pima Community College

### **Roberta L. Casper, Mathematics (1999)**

A.S. Pima Community College; B.S., B.S., M.Ed. University of Arizona

### **Dr. Ricardo Castro-Salazar, History/Political Science (1999)**

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; Ed.D. University of Durham-England

### **Kathryn Challenger, Nursing (2008)**

B.S. Rush University; M.S.N. Walden University

### **Dr. Ann Christensen, Biology (1992)**

B.S., M.S. Concordia University; Ph.D. Queen's University

**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

**Joshua Cochran, Writing (2008)**

B.A. University of Arizona; M.F.A. City College of New York

**Rebecca Cohen, Special Education (2009)**

B.A. University of Pittsburgh; M.A. University of Arizona

**J. Scott Collins, Mathematics (1994)**

B.S., M.S. Virginia Polytechnic Institute

**Eric Comport, Librarian (2003)**

B.A., M.A. University of Arizona

**Dr. Gary A. Cooper, Chemistry (2012)**

B.A., M.S., Ph.D. Arizona State University

**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

**Rosanne Couston, Librarian (2009)**

B.F.A., M.A. University of Arizona

**Janet Coyne, Nursing (2010)**

B.S. Saint Joseph's College; M.S. The Sage College

**Dr. Amy Cramer, Business and Economics (2002)**

B.A., M.A., Ph.D. University of Massachusetts

**Dr. Steven Croft, Astronomy (2008)**

B.S. Brigham Young University; M.S., Ph.D. University of California-Los Angeles;

**Dr. Guadalupe A. Cruikshank, Spanish (2001)**

B.A., M.A. University of Arizona; Ph.D. University of Arizona

**Carmen E. Cueva, Computer Aided Drafting (2010)**

B.Arch. University of Arizona

**Robert F. Cunningham, Counselor (2012)**

B.A., M.S. University of California, Long Beach

**Joseph Dal Pra, Art (2008)**

B.F.A. College of Mount Saint Joseph; M.F.A. University of Cincinnati

**Fred D'Angelo, Computer Information Systems/Computer Software Applications (2010)**

B.S. University of Connecticut; M.S. University of Hartford

**Amy Davis, Counselor (2007)**

B.A., B.A. Arizona State University; M.A., M.A. 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

**Suzanne Desjardin, Counselor (2003)**

A.A. Pima Community College; B.A. University of Arizona; M.C. University of Phoenix

**Kathryn Di Piero, Nursing (2008)**

B.S.N. University of Wisconsin-Milwaukee; M.S.N. Marquette University College of Nursing

**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

**Edward Doran, Counselor (2010)**

B.A. University of Arizona; M.Ed. Northern Arizona University

**Shelly Dorsey, Writing (2002)**

B.A., M.A. University of Arizona; M.A. University of Canterbury at Kent

**Dino L. Dreyfus, Nursing (2012)**

B.S.N. Colegio de San Agustin – Bacalod; M.S.N. University of Saint La Salle

**Kimlisa S. Duchicela, History (2004)**

A.A. San Diego City College; B.A., M.A. San Diego University

**Dr. Jody Lee 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 Kunste

**Dr. Joel E. Dworin, Reading (2012)**

B.A.Ed., M.Ed., Ph.D. 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

**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

**Dr. Noah Fay, Geology (2004)**

B.S. Eastern Michigan University; Ph.D. University of Oregon

**Melania Federico, Counselor (2010)**

B.S. University of Arizona; M.Ed. Northern Arizona 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

**Carolyn Fike, English as a Second Language (2008)**

B.A. Michigan State University; M.S. Eastern Michigan University

**Margaret K. Files, Writing (1987)**

A.B., A.M. University of Illinois

**Joseph Fitzpatrick, Welding (2007)**

Industry certifications: Welding Certifications, ABC Technical and Trade Schools; Metallurgy Certificate of Completion, Arizona Air National Guard 162nd

**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

**Robert Foth, Mathematics (2008)**

B.S. California State University; M.S. University of Nebraska

**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. Jeffrey Gabbitas, Translation Studies (2009)**

B.A., M.A. Brigham Young University; Ph.D. University of Arizona

**Duff C. Galda, Special Education (1997)**

A.A. Glendale Community College; B.S., M.Ed., M.Ed., M.Ed. Northern Arizona University

**Joy Gall, Dental Hygiene (2007)**

Certificate, Dental Hygiene, University of Texas Health Science Center; B.S. University of the Incarnate Word; M.B.A. Midwestern State 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

**Joseph J. Gaw, Nursing (2012)**

B.S., M.S. Grand Canyon University

**Simone Gers, Writing (1998)**

B.A., M.A. University of Houston-Clear Lake

**Mirjana Glisovic-Bensa, Mathematics (2012)**

B.S., M.S. Northern Arizona University

**Bryan C. Goldkuhl, Automotive Technology (2012)**

Master Automotive Technician - National of Automotive Service Excellence; Provisional Career and Technical Educational Industrial Technician Certificate - Arizona Department of Education

**Margaret S. Golston, Writing (2012)**

B.A., M.F.A. University of Arizona

**Aurora Goncalves-Shaner, Dance (2012)**

B.A. Brigham Young University; M.F.A. University of Arizona

**Dr. Linda Gail Gonzales, Psychology (1999)**

B.A. Southwest Texas State University; M.A., Ph.D. University of Texas

**Dr. Eugene W. Gotwalt, Economics (2010)**

B.A., B.A. Millersville University; M.A. Ph.D. George Mason University

**Dr. Julia V. Gousseva, Writing (2001)**

B.A. Moscow State Linguistic University; M.A., Ph.D. University of Arizona

**Andrea Graham, Writing (2010)**

B.A., M. TESL, M.A. Arizona State University

**Darryl Graham, History (1995)**

B.A. Queens College; M.A. Long Island University; M.A. University of Wisconsin

**Elena Grajeda, Languages (1999)**

B.A.Ed., M.A.Ed. University of Arizona

**Stephen Grede, Computer Aided Drafting (2007)**

Bachelor of Landscape Architecture, University of Arizona

**Dr. Mischala Grill, Biology (2008)**

B.S. Pennsylvania State University; Ph.D. University of Arizona

**Lori Grimm, Reading (1996)**

B.A. Fort Lewis College; M.A. University of Arizona

**Jennifer Guajardo, Mathematics (2009)**

B.S. University of Texas; M.S. University of Utah

**Guadalupe A. Gutierrez, Nursing (1989)**

B.S.N. University of Arizona; M.S.N. University of Phoenix

**Ann Haber, Biology (2002)**

B.S. Purdue University; M.S. University of Arizona

**Dr. Wayne L. Hacker, Mathematics (2004)**

A.A. Florissant Valley Community College; A.B. Washington University; M.A. St. Louis University; M.S., Ph.D. University of Arizona

**Emily M. Halvorson, Chemistry (2005)**

B.S. Fort Lewis College; M.A. University of Arizona

**Nancy W. Hamadou, English as a Second Language (1997)**

B.A. Indiana State University; M.A. Ohio University

**Dr. Chien-Wei Han, Technology Education (2002)**

B.S. California Institute of Technology; M.S. Carnegie Mellon University; M.S., Ph.D. University of Arizona

**Virginia Harmelink, Early Childhood Education (2008)**

B.S. M.A. University of Wyoming

**Jennifer N. Harras, Mathematics (2012)**

B.S. University of Washington; M.S. Washington State University

**Makyla M. Hays, Mathematics (2011)**

B.S. Grand Canyon University; M.A. University of Arizona

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B.S., M.A., Ph.D. University of Arizona

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A.A.S. Pima Community College

**Perry Higgins, Counselor (1996)**

B.S. United States Naval Academy; M.A. California State University-Dominguez Hills; M.Ed. Northern Arizona University

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B.A. St. Edward's University; M.A. University of Rhode Island; Ph.D. University of Arizona

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B.S. Arizona State University; M.A.Ed., Ed.D. Northern Arizona University

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B.A., M.S. University of Arizona

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B.A., M.A. University of Washington

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B.S.Ed., B.S.M.E. University of Michigan; M.S. University of Idaho
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B.S. Christian Albrecht University; M.Ed. Northern Arizona University
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B.A. University of Arizona
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B.S., M.S., D.A. University of Illinois at Chicago
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B.S. Southern Illinois University; M.A. Chapman University; Ph.D. Capella University
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B.S., M.S. University of Arizona
- Wright N. Randolph Jr., Emergency Medical Technology (2006)**  
A.G.S., A.A. Arizona Western College; Basic EMT Certificate, Paramedic Certificate Pima Community College
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Technical Certificate, Pima Community College; B.S., M.S. Embry-Riddle Aeronautical University
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B.A. Vanderbilt University; M.A. University of Arizona
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B.S.B.A., M.B.A., J.D. University of Denver
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Certifications: Geometric Tolerance and Dimensioning, Compact II Numerical Control (Mill), Compact II Numerical Control (Lathe), Carbology Cutting Technology and High Efficiency Machining, Computer Numerical Control Programming, Bravo Draft Training, GEN/GSM Training, Smart-Cam 3-D.
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B.S.W., M.S.W. New Mexico State University

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M.S. Azerbaijan Institute of Oil and Chemistry; Ph.D. Moscow Institute of Oil and Gas

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B.A., M.S. University of Arizona; M.C. University of Phoenix

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## 29th Street Coalition Center

Address and Phone Number 8

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