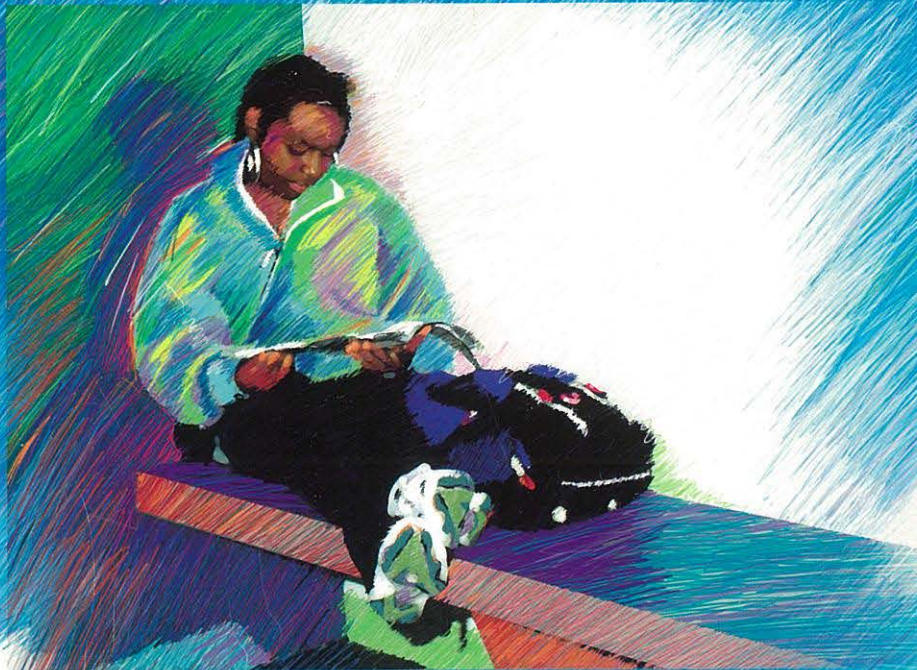
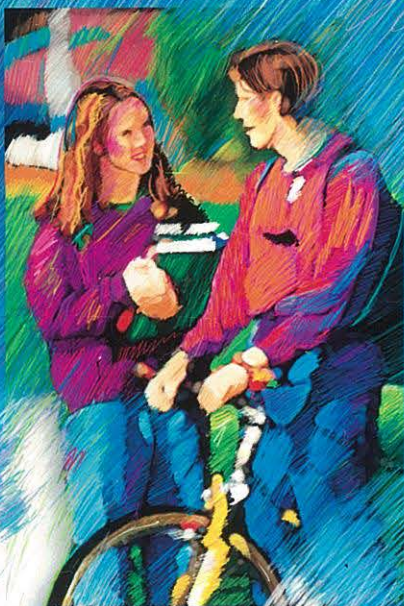
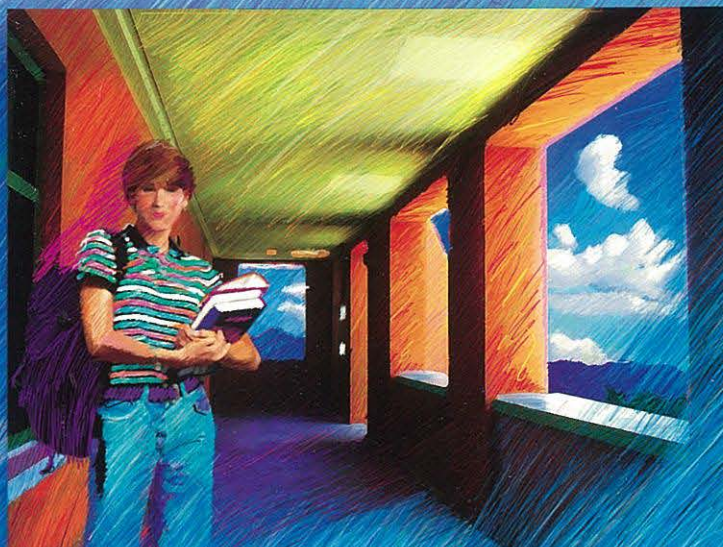
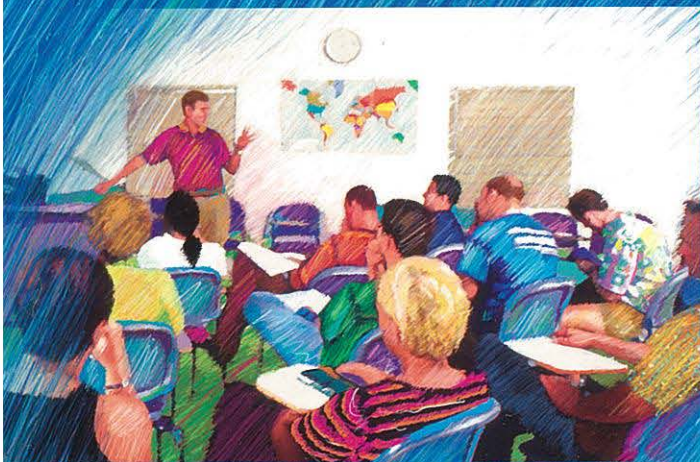
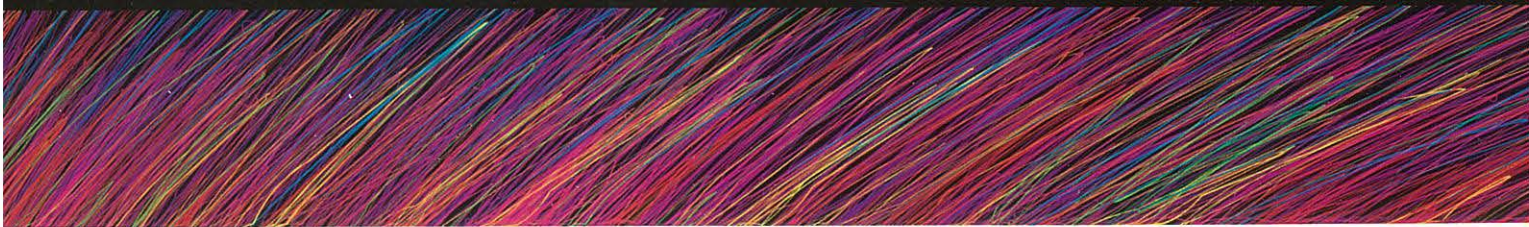
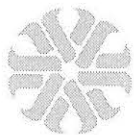


PimaCountyCommunityCollegeDistrict

# PimaCommunityCollegeCatalog 2004|2005







# PimaCommunityCollegeCatalog 2004/2005

## Pima County Community College District

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

### Board of Governors

District 1 Brenda B. Even, Ph.D., Chair

District 2 Mr. Richard G. Fimbres

District 3 Ms. Sherryn S. Marshall

District 4 Mr. Scott A. Stewart

District 5 Ms. Marty Cortez

Roy Flores, Ph.D., Chancellor

Pima Community College is an equal opportunity, affirmative action employer and educational institution committed to excellence through diversity. See page 356 for more information.

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

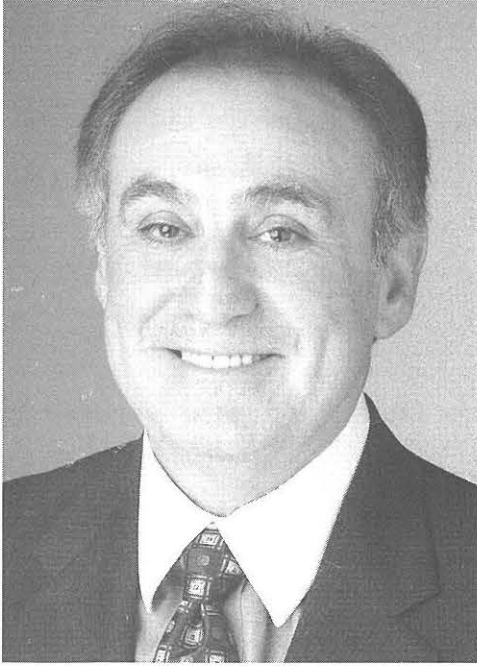
### Catalog replacement cost: \$2.50

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

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

Published: May 2004





## Message from the Chancellor

**W**elcome to Pima Community College and to the wealth of opportunities that await you.

The College offers a wide variety of academic and occupational areas of study. You can take courses in a traditional semester, on weekends and evenings or in an accelerated time frame. You can attend class over television or the Internet. Pima Community College offers attractive campuses at six locations in Tucson, several community learning centers, and approximately 145 off-campus locations throughout the community.

At campus one-stop centers you can register, meet with a counselor and get help with financial aid. Orientation sessions will introduce you to campus and academic life and help you with study skills. Most importantly, you'll enjoy an outstanding faculty, staff and administration dedicated to assisting you in reaching your educational goals!

Take some time to get involved with student life at Pima. You will enrich your experience here if you take advantage of the many opportunities offered through student activities and the variety of cultural and sporting events held at the College.

I wish you success this year and in the years to come and I hope you enjoy your experience at Pima Community College.

Cordially,

Roy Flores, Ph.D.  
Chancellor



# Table of Contents

Message from the Chancellor .....	2
Academic Calendar .....	4
<b>The College</b> .....	5
How This Catalog Can Help Students to Succeed .....	6
Accreditation .....	6
Mission Statement .....	6
Institutional Effectiveness Policy .....	7
Historic Profile .....	7
Pima County Community College District	
Addresses/Contact Information .....	8
Map of .....	9
Community Campus .....	10
Desert Vista Campus .....	12
Downtown Campus .....	14
East Campus .....	16
Northwest Campus .....	18
West Campus .....	20
<b>Admissions, Registration and Records</b> .....	22
Admission to the College .....	22
Student Residency Requirements .....	23
Required Use of Social Security Number .....	25
Student Identification Number, Assignment of .....	25
Before the First Semester .....	25
Assessments .....	25
Advising .....	26
Orientation .....	26
Declaring a Program of Study .....	26
Transfer of Credits .....	26
Credit by Examination .....	27
Enrolling in Classes (Registration) .....	31
Important Student Information .....	32
Student Rights and Responsibilities .....	32
Religious Observances .....	32
Family Educational Rights and Privacy Act (FERPA) .....	32
Academic Policies .....	32
Grades, Academic Progress and Student Classification .....	32
<b>Costs and Payments</b> .....	34
Tuition and Fees .....	34
Tuition and Fees Payment Methods .....	35
Student Refund Policy	
For Credit Courses .....	36
For Noncredit Activities and Study Tours .....	37
<b>Financial Assistance</b> .....	38
Financial Aid/Scholarships .....	38
Department of Veterans Affairs Educational Assistance .....	39
Pima Community College Foundation .....	40

<b>Student Services and Student Life</b> .....	41
<b>Student Services:</b>	
Admission/Registration .....	41
Advising/Counseling .....	41
Assessments .....	41
Bookstores .....	41
Cafeterias .....	41
Campus Police Services .....	41
Career Services .....	41
Cashier .....	42
Childcare .....	42
Disabled Student Resources (DSR) .....	42
Financial Aid .....	43
Insurance .....	43
International Student Services .....	43
Job Information .....	43
Library Services .....	43
Orientation .....	43
Parking and Bus Service .....	44
Specialized Programs .....	44
Student Identification Cards .....	44
Transcripts .....	44
Tutoring .....	44
Veterans Services .....	44
<b>Student Life:</b>	
Clubs and Organizations .....	44
Leadership and Student Government .....	44
Performing Arts .....	44
Phi Theta Kappa .....	44
Publications .....	45
Sports (Intercollegiate and Recreational) .....	45
Student Housing .....	45
Student Recognition Activities .....	45
Drug-Free Schools and Communities Act Information .....	45
<b>Educational Options</b> .....	46
Introduction .....	46
Traditional-Style Classes .....	46
Alternative-Style Classes .....	46
Honors Program .....	46
<b>Earning a Degree or a Certificate</b> .....	47
Degree, Certificate, and Graduation Requirements .....	47
General Education Information .....	48
Requirements by Degree or Certificate .....	48
Prerequisite for General Education .....	48
General Education Requirements for:	
Occupational Programs .....	49
Associate of General Studies .....	49
Transfer Programs .....	50
<b>Educational Programs, Degrees, and Certificates</b> .....	57
<b>Educational Courses</b> .....	221
<b>Selected Policies, Governance, and Faculty</b> .....	355
<b>Index</b> .....	364



# Academic Calendar

## Fall Semester 2004

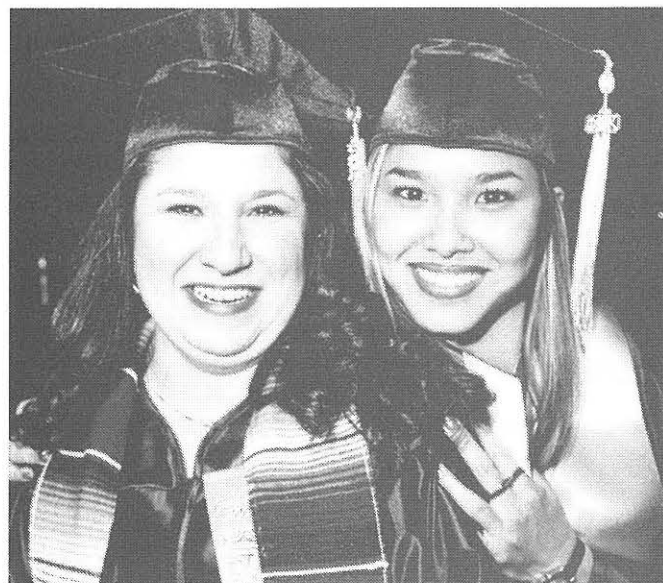
All College In-Service Day (College Closed)	Aug. 16
Faculty advising begins	Aug. 17
* <b>Fall classes begin</b> (for 16-week classes)	Aug. 23
‡ First 8-week session begins	Aug. 23
Add week (traditional-length courses)	Aug. 23 – Aug. 29
Labor Day holiday (College closed)	Sept. 6
Drop/Refund deadline for 16-week classes	Sept. 7
Graduation Application Deadline	Oct. 15
First 8-week session ends	Oct. 17
‡ Second 8-week session begins	Oct. 18
Veterans Day holiday (College closed)	Nov. 11
Withdrawal deadline (for 16-week classes)	Nov. 5
Thanksgiving holiday (College closed)	Nov. 25 – Nov. 28
Final exam week	Dec. 8 – Dec. 14
<b>Fall semester ends</b> (traditional semester)	Dec. 14
Second 8-week session ends	Dec. 12
Winter recess (students/faculty)	Dec. 17 – Jan. 2
Holiday break (College closed)	Dec. 25 – Jan. 2

## Winter Intersession 2004-05

‡ <b>Classes begin</b>	Dec. 15
Classes resume	Jan. 3
<b>Classes end</b>	Jan. 6

## Spring Semester 2005

College opens	Jan. 3
Faculty advising begins	Jan. 5
All Faculty Day	Jan. 7
* <b>Spring classes begin</b> (traditional semester)	Jan. 12
‡ First 8-week session begins	Jan. 12
Add week	Jan. 12 – 19
Martin Luther King Jr. holiday (College closed)	Jan. 17
Drop/refund deadline for 16-week classes	Jan. 25
** Rodeo holiday (College closed)	Feb. 24 – 25
Graduation Application Deadline	Feb. 23
First 8-week session ends	Mar. 8
Spring break (no classes)	Mar. 14 – 20
‡ Second 8-week session begins	Mar. 9
Withdrawal deadline (for 16-week classes)	Apr. 6
Final exam week	May 6 – May 12
Graduation	May 12
<b>Spring semester ends</b> (traditional semester)	May 12
Second 8-week session ends	May 10



## Summer Sessions 2005

### Session A

Classes begin	May 23
Add/drop	May 23 – May 24
Memorial Day holiday (College closed)	May 30
Classes end (5 week session)	Jun. 27
Independence Day holiday (College closed)	Jul. 4

### Session B

Classes begin	Jul. 5
Add/drop	Jul. 5 – 6
Classes end (5 week session)	Aug. 8

### Session C

Classes begin	May 23
Add/drop	May 23 – 31
Memorial Day holiday (College closed)	May 30
Independence Day holiday (College closed)	Jul. 4
Classes end	
• 8-week session	Jul. 18
• 10-week session	Aug. 1

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

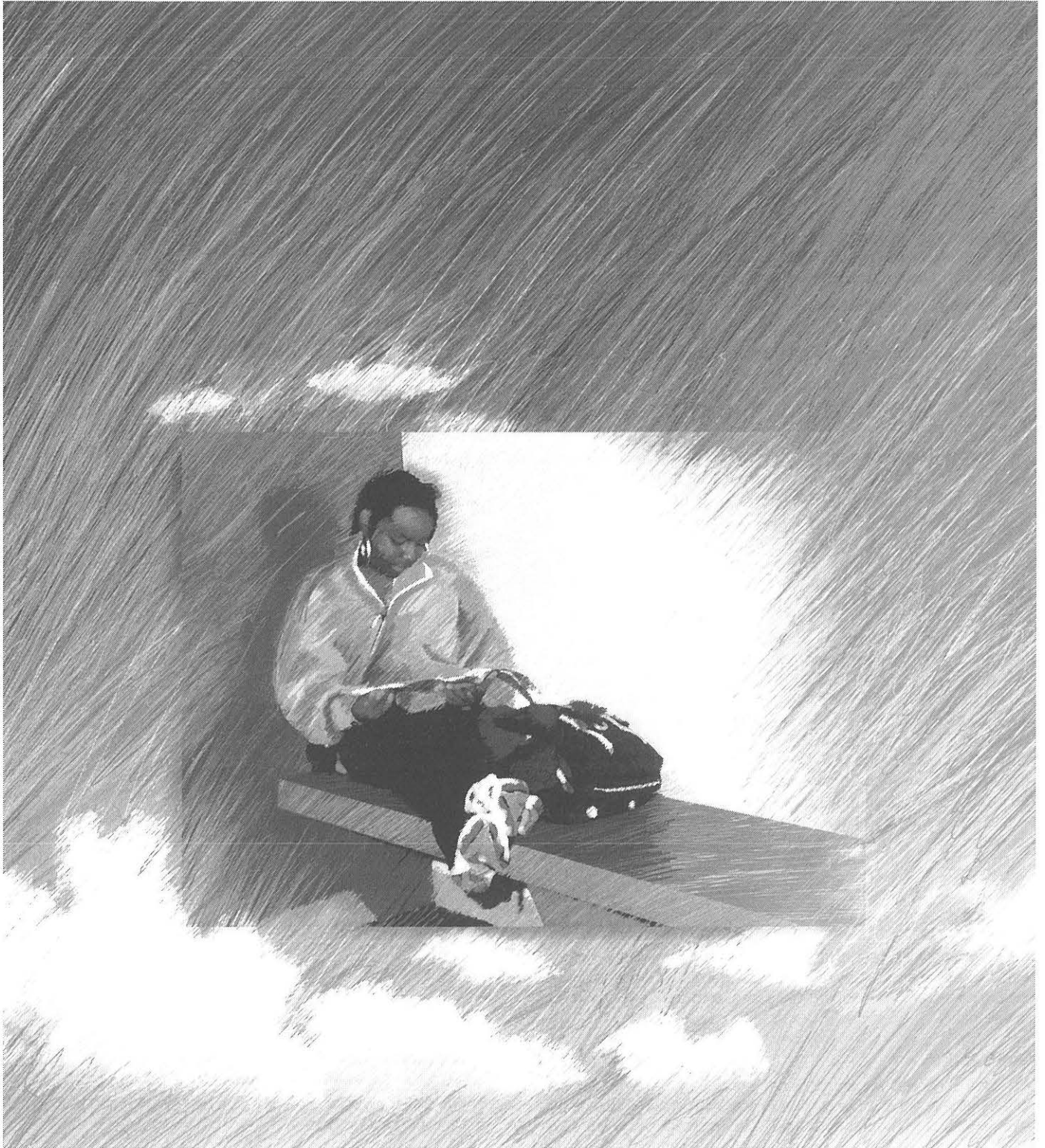
‡ Sessions may begin earlier at Davis-Monthan Air Force Base.

\*\* The College will be open for classes/activities on the Saturday and Sunday following the 2005 Rodeo Holiday.

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



# The College





# How This Catalog Can Help Students To Succeed

As you pursue your goal of higher education, this catalog can be a valuable tool in answering your questions and helping you while you are at Pima Community College. The Pima Community College Catalog is organized to guide you through each step of your college career at this institution:

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

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

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

The other two publications in the triangle of student success are:

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

## Accreditation

Pima Community College is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools, which can be contacted at their Web site address, <http://www.ncacihe.org>; by telephone at (800) 621-7440; by fax at (312) 263-7462; or by mail at 30 N. LaSalle Street, Suite 2400, Chicago, Illinois 60602-2504. Specialized agencies, each recognized by the U.S. Department of Education, have also accredited or approved individual study programs in nursing, radiologic technology, dental hygiene education, dental laboratory technology, dental assisting education, legal assistant, and respiratory therapy.

## Our Mission

Pima Community College transforms and enriches lives through teaching excellence, community partnerships, lifelong learning opportunities, and developing the potential of our people and our communities.

## Our Values

We value service to our students and our community. We are committed to the success of all students by providing excellence in the teaching/learning process. We value our employees and are committed to their leadership development and success. We build

community by developing strong partnerships to reach mutual goals. We believe that equity, diversity, and access are fundamental to Pima Community College. We are committed to provide a 21st Century learning environment. We hold ourselves accountable for our stated values and the public trust placed in us.

## Our Purposes

The College fulfills its mission through the following purposes:

### Adult Education

To provide adult learners opportunities to acquire foundational skills and knowledge to enrich themselves, their families, their workplaces, and their community.

### Developmental Education

To serve students in raising their basic skills so that they can succeed in college work and in life.

### General Education

To provide a core of learning in all programs which broadens students' historical and cultural perspectives, provides skills for further learning, and promotes responsible citizenship and decision-making.

### Occupational and Professional Education

To educate and train students for careers in increasingly complex economies.

### Transfer Education

To prepare students to transfer and succeed in other institutions of higher education.

### Community Education

To enrich the lives of a diverse population by providing lifelong learning through education and community partnerships.

### Student Success Services

To assist students in raising their aspirations and realizing their full potential through assessment and academic support services, library services, and student activities.

### Business and Economic Development

To assist the economic development of the greater community through collaborative planning, workforce development programs, lifelong career education and training, and technical assistance to business and governmental agencies.

## Success Indicators

1. Students will find the College's programs and services accessible and competitively affordable among Arizona community colleges.
2. Courses and programs will meet the needs of students, employers, and the College's educational partners.
3. Employers and educational partners will find that the College adapts quickly and responsibly to changing education and workplace requirements.
4. Students will set educational goals and show persistence in reaching them.
5. The College will develop and implement ways to meet the needs of the unserved, underserved, and non-returning students in its service area.
6. The College will develop community partnerships to leverage resources.
7. Students completing coursework will have the knowledge, skills, and values to compete successfully for jobs in local and global markets and in continuing higher education.
8. The College will provide effective professional and leadership development programs.

9. Pima Community College students and employees will reflect the diversity of the community.
10. The College will provide instructional modalities, classroom equipment and technology, and facilities to support a 21st Century learning environment.

The College will evaluate and report to the community its overall institutional effectiveness.

## 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)

### Implementation

The College takes a number of integrated steps to plan and improve its programs and services.

- It annually measures its overall mission performance by reporting to the community on ten Indicators of Success.
- The quality of each academic program and service is assessed on a three-year cycle.
- It applies a comprehensive set of measures to assess student academic achievement in all facets of student learning.
- The performance of all employees is assessed on a regular basis.

Each of these steps is supported by timely surveys and research studies of students, College employees, area employers and taxpayers, and other education partner institutions.

## 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 serve more than 12,000 students each semester.

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

In 1974 the College opened the Downtown Campus at Stone Avenue and Speedway Boulevard. The first classes were held in a remodeled post office building. With the purchase of neighboring structures and the construction of the campus center and classroom technology building, the campus grew to 15 buildings. The campus currently serves more than 10,000 students.

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

The College established the East Education Center in 1976, which became the East Campus in 1980. Located on a desert site east of Davis-Monthan Air Force Base, the campus doubled in size in the fall of 1989 with the construction of the student union and library. It has since expanded to accommodate more than 6,000 students. The campus shares recreational and classroom facilities with the Tucson Parks and Recreation Clements Center.

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

A 1995 Pima County bond election enabled the College to use taxpayer-supported bonds to finance much-needed expansion and important facility and technology improvements throughout the Pima County Community College District. The Northwest Community Learning Center opened in 1998 and in fall 2003 was replaced by Northwest Campus on North Shannon Road. In 2000, the College established the Northeast Community Learning Center and in 2002 opened the Southeast Community Learning Center.

For many of its 30-plus years, Pima Community College has ranked among the five largest multi-campus community colleges in the nation, and currently enrolls more than 82,000 students annually.

### Pima County Community College District Presidents/Chancellors

#### Presidents

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

#### Chancellor (title change)

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



# Pima County Community College District

## District Office

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

## District Service Support Center

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

## Campuses

### Community Campus

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

### Desert Vista Campus

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

### Downtown Campus

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

### East Campus

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

### Northwest Campus

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

### West Campus

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

## Educational Centers and Offices

### Alumni Association (See District Office)

4905C East Broadway Blvd.  
Tucson, AZ 85709-1290  
(520) 206-4528

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

8181 East Irvington Rd.  
Tucson, AZ 85709-4000  
(520) 206-7888

### Aviation Technology Center

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

### Center for Business Solutions (See Community Campus)

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

### Center for the Arts (See West Campus)

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

## Educational Centers and Offices (continued)

### Center for Training and Development (See Community Campus)

401 North Bonita Ave.  
Tucson, AZ 85709-5400  
(520) 206-6424

### Community Education (See Community Campus)

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

### Davis-Monthan Air Force Base

355 MSS/DPE  
5260 East Granite St.  
Tucson, AZ 85707-3009  
(520) 206-4866

### Community Learning Center (Not pictured on the map)

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

### Northeast Community Learning Center

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

### Pima Community College Adult Education Administrative Offices

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

### Pima Community College Adult Education Eastside Learning Center

(Not pictured on map)  
1630 South Alvernon  
Tucson, AZ 85711  
(520) 881-5520

### Pima Community College Adult Education El Pueblo Liberty Learning Center

(Not pictured on map)  
101 West Irvington, Building 7  
Tucson, AZ 85714  
(520) 294-6705

### Pima Community College Adult Education El Rio Learning Center

(Not pictured on map)  
1390 West Speedway  
Tucson, AZ 85745  
(520) 882-0940

### Pima Community College Foundation (See District Office)

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

### Public Safety and Emergency Services Institute

8181 East Irvington Rd.  
Tucson, AZ 85709-4000  
(520) 206-7814

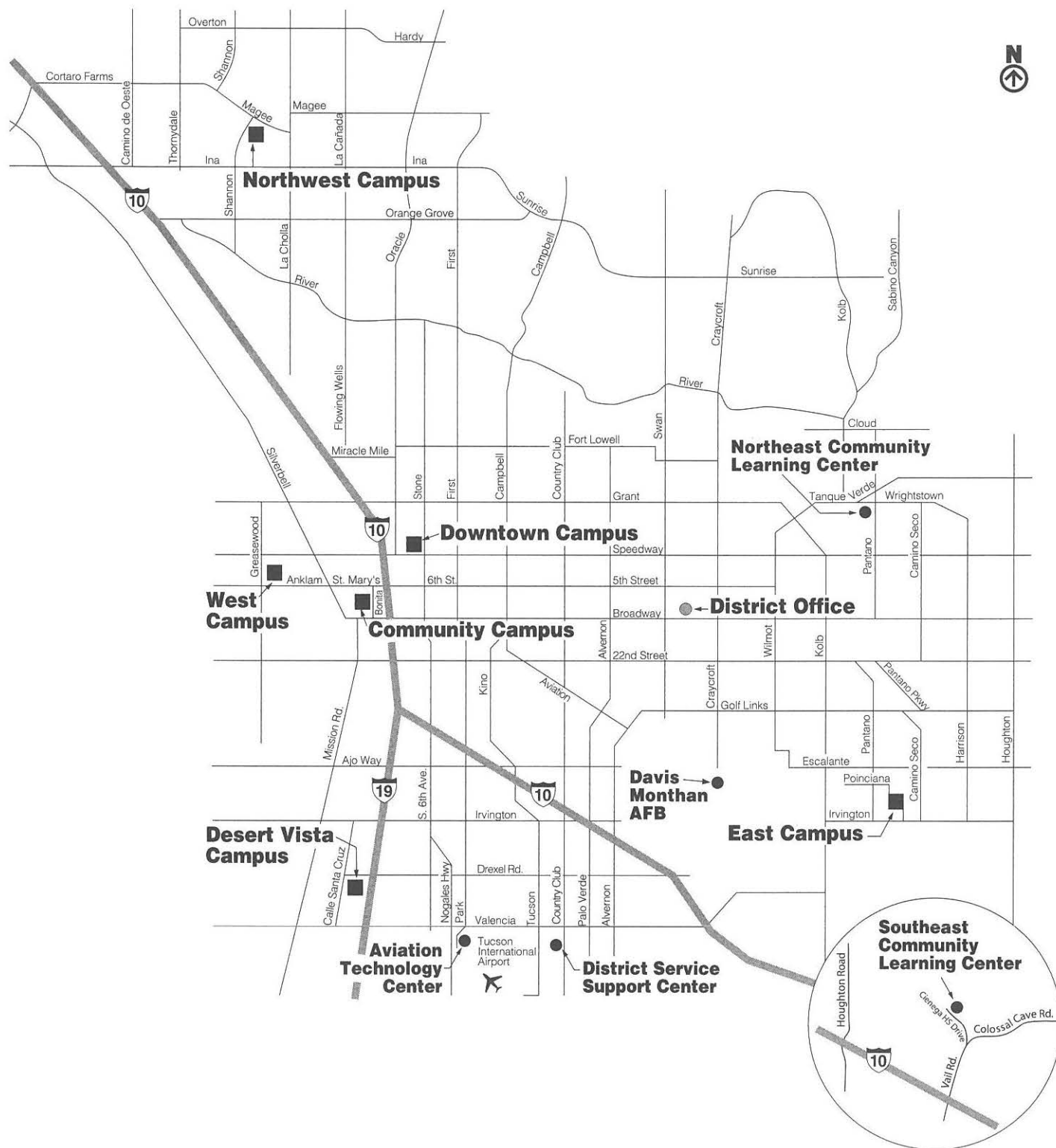
### Small Business Development Center (See Community Campus)

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

### Southeast Community Learning Center

Cienega High School  
12901 East Colossal Cave Rd.  
Vail, AZ 85641  
(520) 762-2988

# College Locations





## Community Campus

The Community Campus has been serving students since 1975. The Community Campus offers credit and non-credit classes at its campus location (401 N. Bonita Ave.) and at more than 145 facilities throughout southern Arizona. Sites include Davis-Monthan Air Force Base, Green Valley, Sells, Globe, Payson, San Carlos, and at locations throughout the Tucson area. Community Campus is at the center of the College's distance education programs, offered via cable TV, interactive video and the Internet.

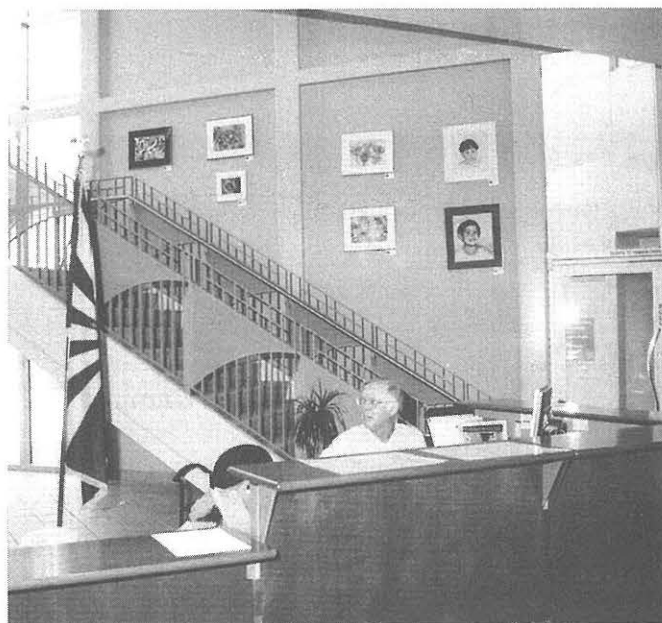
The Community Campus provides a wide range of courses developed to meet the diverse needs of the greater Tucson community, as defined by its residents and local businesses. Customer-driven programs and classes are offered to more than 30,000 persons each year. In the fall 2003 semester alone, the Community Campus served more than 7,300 credit students.

The Community Campus services include development and delivery of classes and programs in a variety of modes and locations. It also develops and administers educational services in support of College-wide programs and initiatives. The Community Campus offers degrees in Associate of Arts (AA), Associate of Science (AS), Associate of General Studies (AGS), and Associate of Applied Science – Business and Industry Technology (AAS-BIT). The AAS-BIT degree includes industrial certifications ranging from A+ and Net+ to Cisco.

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

Through its Workforce and Business Development division, PCC provides comprehensive, cost-effective training options for individual workers, as well as for businesses and organizations.

Workforce and Business Development consists of the Center for Business Solutions, the Center for Training and Development, the Public Safety and Emergency Services Institute,



Workforce Investment Act Programs, the Small Business Development Center, the Arizona State Environmental Technology Center, Federal and State Prison Programs and the Truck Driver Professional Training Program.

The Center for Business Solutions (CBS) provides performance consulting services, economic development initiatives and customized professional development training opportunities for businesses and their employees. Technology performance improvement and training is provided through the Information Technology Institute. The Small Business Development Center (SBDC) provides business consulting and training services that address every stage of business development from start-up to business expansion and retention. Workforce training services are provided by the Center for Training and Development (CTD).

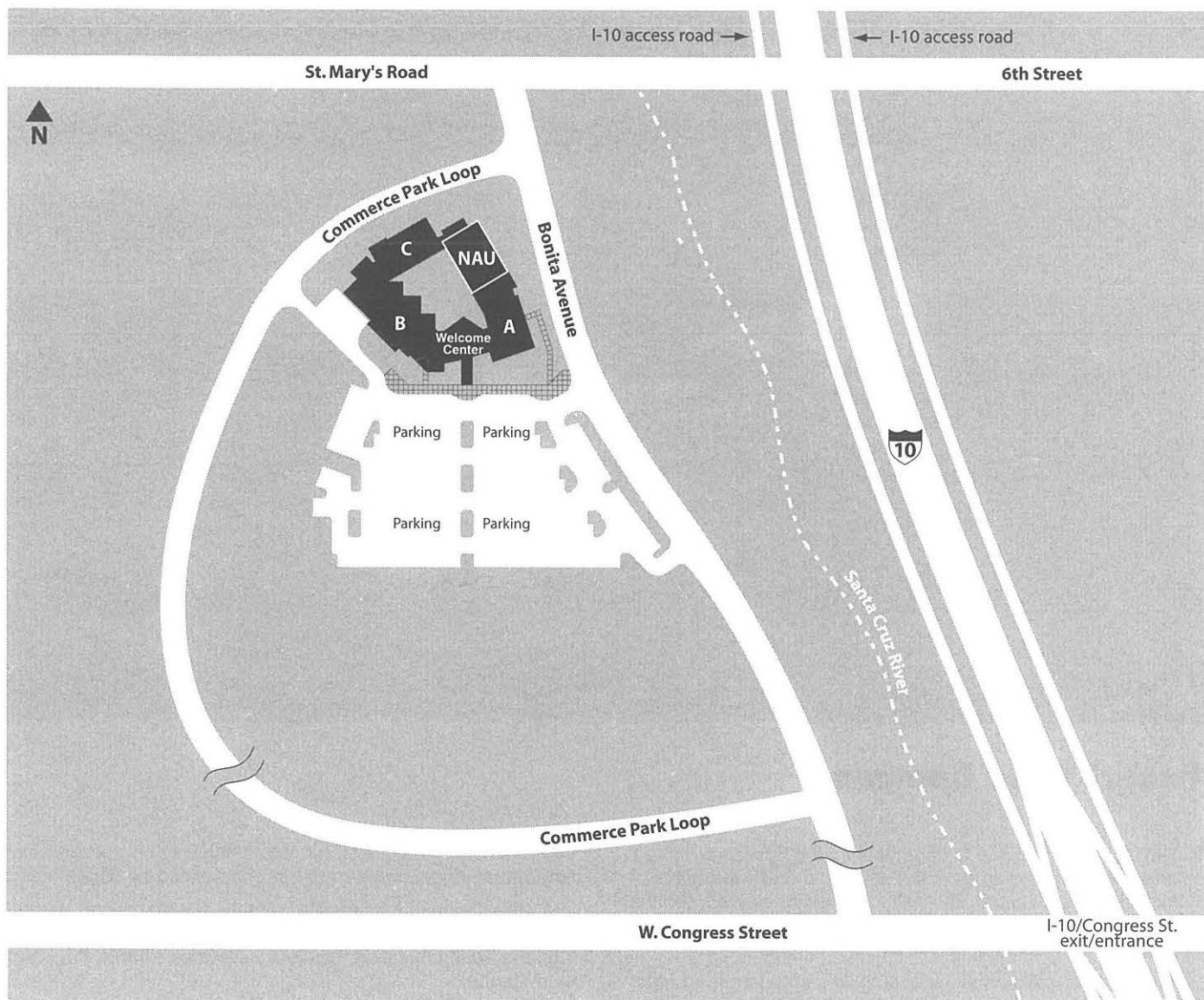
Pima Community College Adult Education, with sites throughout Pima County, coordinates adult basic education classes and services. PCCA offers an array of programs, including GED preparation classes and testing, English for speakers of other languages, citizenship classes, education programs for the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

Community Education programs and services include non-credit general interest classes, senior programs, summer classes for K-12 students, workshops and seminars, as well as educational study tours throughout the Southwest, Mexico and abroad.

The Community Campus offices include registration and cashier services, advising and counseling, a learning resource and educational service center, computer labs, conference and training facilities, as well as administrative offices for the campus and its various divisions. The telecommunications wing houses the College's interactive classroom system hub, broadcast-quality production facilities and the telecourse distribution center.

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





**Area A:**

- Center for Business Solutions
- Center for Training and Development
- Computer Commons
- Conference and Training Center
- Continuing Education for Professionals
- Hi Tech Training Rooms
- NAU Administrative Offices
- Small Business Development Center
- Workforce and Business Development

**Area B:**

- Administration
- Administrative and Business Services
- Admissions and Registration
- Advising and Counseling
- Campus Support Services
- Adjunct Faculty Resource Center
- Assessments/Testing
- Telecourse Resource Center
- Library Services

**Area B:**

- Career Counseling
- Cashiers
- Community Education
- Instructional Design and Development
- Pima Community College Adult Education
- Student Development
- Instructional Administration

**Area C:**

- Telecommunications and Production Services
- Telecourse and Interactive Classroom Distribution Center
- Broadcast Studio

**NAU**

- Northern Arizona University Classrooms
- NAU Administrative Offices





## Desert Vista Campus

In 1986, Pima Community College opened the Education Center-south to serve the residents of the south and southwest areas of Tucson and Pima County. By 1993, the center evolved into the comprehensive Desert Vista Campus, moving to its present location near Interstate 19 and Valencia Road.

Desert Vista offers a wide range of programs and diverse courses, including university transfer, occupational, developmental, and general education. Outstanding courses are offered in Mathematics and Sciences (Biology, Chemistry, Astronomy, and Physics) and Languages (Spanish and English as a Second Language.) Many of these courses are supported by state-of-the-art technology. Programs in Aviation Technology, Culinary Arts, Child Development Associate, Early Childhood Education, Electronics, Computer Networking, and Optoelectronics are also offered. The Child Development Center, which provides child care for children of PCC students and employees, is also located at Desert Vista. All instructional programs and student support services are sustained by a computing network of services geared for student success.

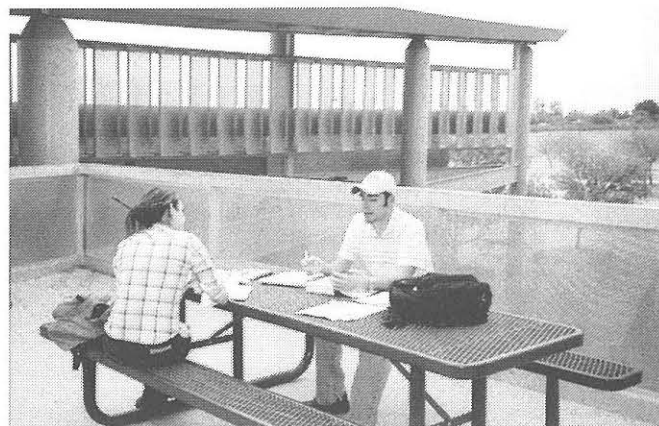
Vision High School, a charter school which mainstreams dually enrolled high school students into the community college environment, and Talent Search, a federally funded program which works with middle and high school students to encourage and support their successful transition into post-secondary education, are also located at Desert Vista.

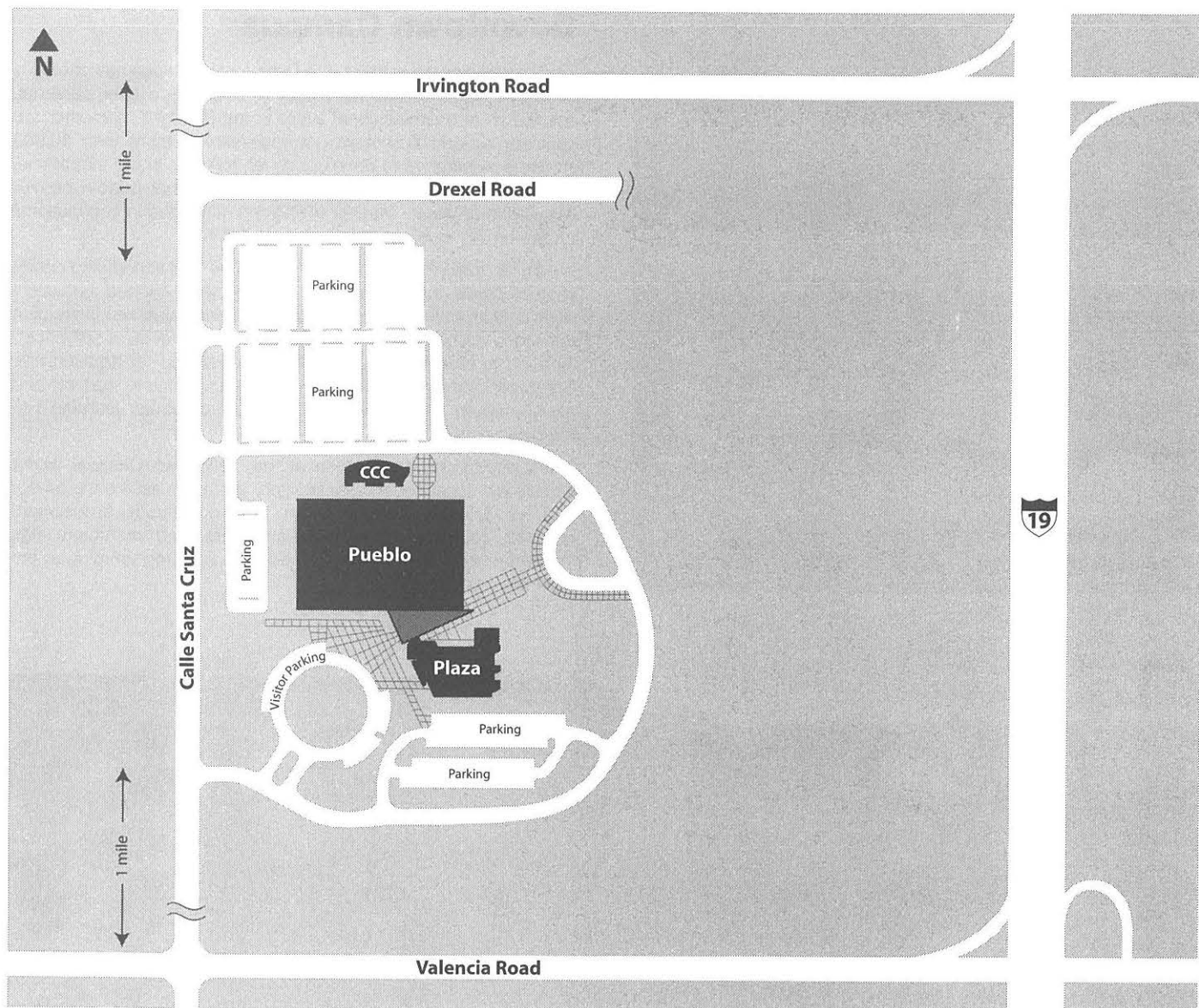
Desert Vista is also the location of many noncredit workforce development programs offered through the Center for Training and Development (CTD). The CTD cooperates with community-based organizations, agencies, and employers to provide individualized

year-round, open-entry/open-exit, job training certificate programs for employment. Approximately 1,000 students attend the CTD annually.

The Desert Vista Library serves students, faculty, college employees and the community. Together with the computer commons, testing, and adult education, the library provides a versatile, varied study space.

As the campus continues to expand, fall 2004 will bring a new addition in the form of a fitness facility. As a result of a partnership with the City of Tucson Parks and Recreation Department, this facility will provide space for activity classes, as well as strength training, with state-of-the-art equipment. Soccer and softball fields are also planned for campus and community use as part of this addition.





#### **Pueblo Building**

Adjunct Faculty Offices  
Administrative Offices  
Audio/Visual Services  
Bookstore  
Business Office  
Cafeteria  
Campus Police  
Center for Training and Development  
Classrooms  
Clerical/Copy Center  
Culinary Kitchens  
Faculty Offices  
Laboratories  
Student Activities

#### **CCC Building**

Child Care Center

#### **Plaza Building**

Admissions/Registration  
Advising and Counseling  
Assessment Center  
Career and Transfer Center  
Cashier  
Center for Individualized Learning  
Center for Training and Development  
Student Services and Learning Center  
Community Outreach/Financial Aid  
Computer Commons  
Disabled Student Resources  
Information Center  
K-12 Outreach  
Library  
One Stop/Welcome Center  
Talent Search  
Technology Classrooms/Laboratories  
Tutoring and Testing Center



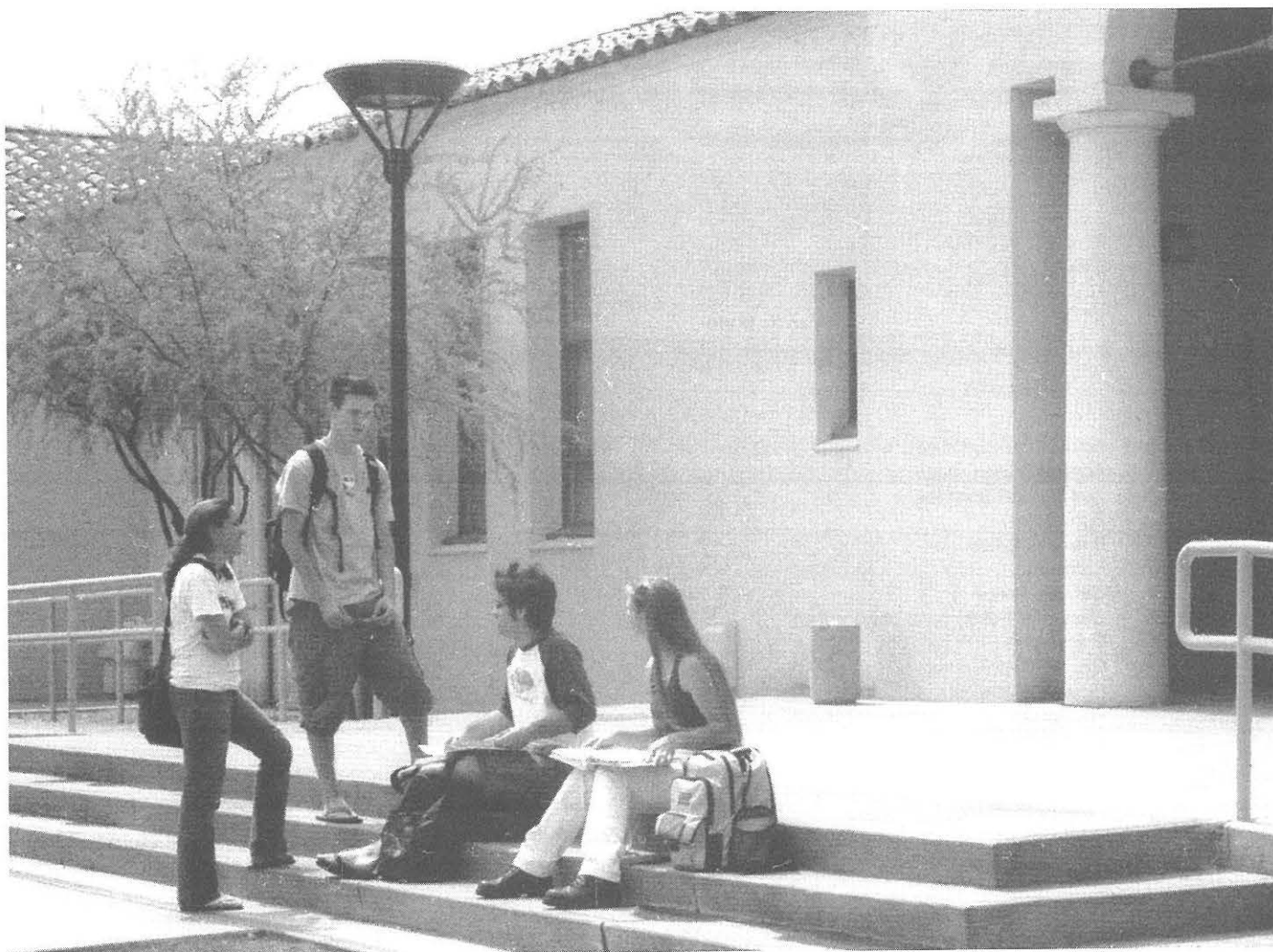


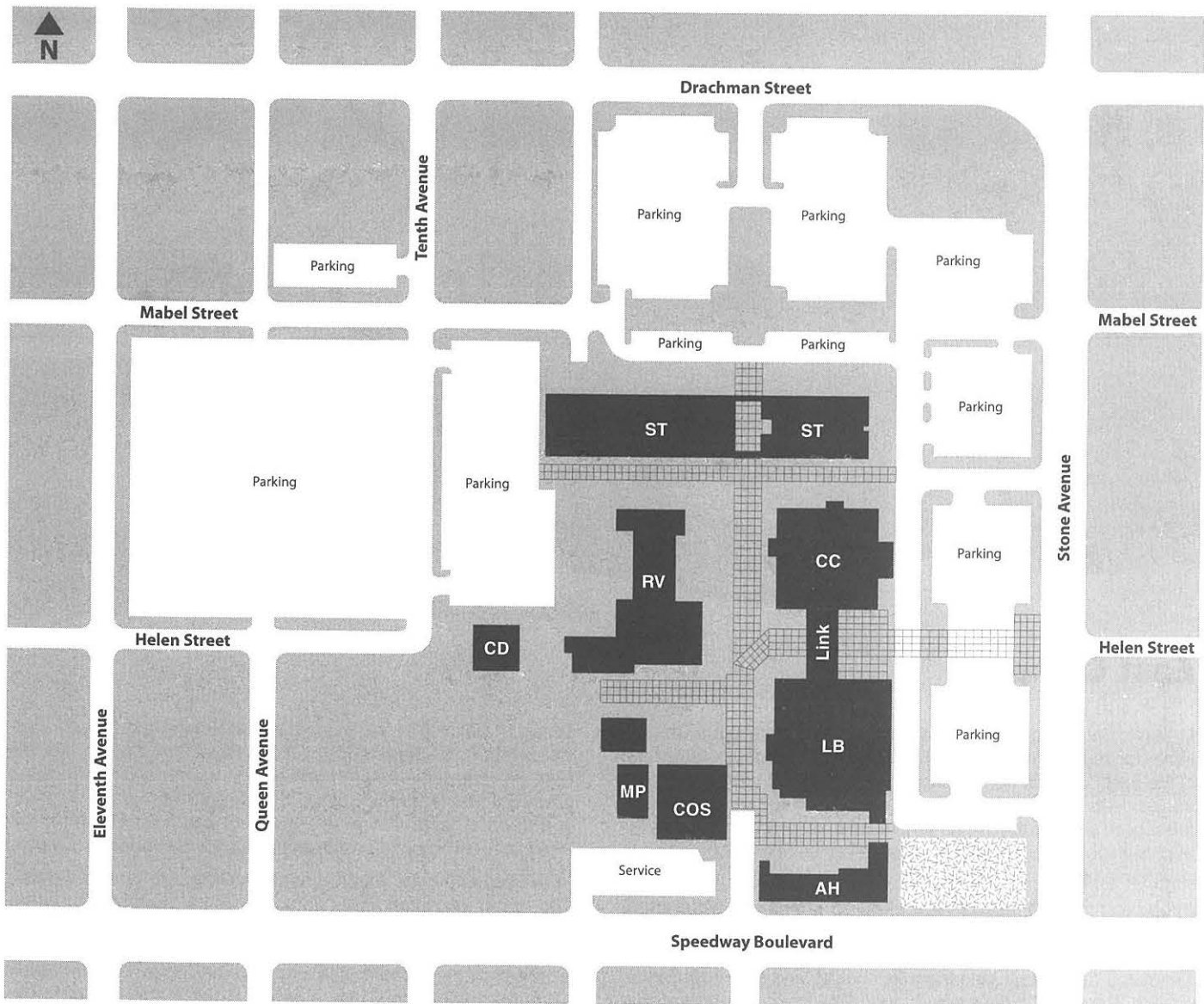
## Downtown Campus

Since its beginning in 1974, the Downtown Campus has offered a variety of opportunities for students to enhance their personal, academic, and professional lives. In the Fall 2002 semester the centrally located Downtown campus served more than 10,000 students. A balance of developmental, transfer, and occupational course offerings has created an enrollment that is both heavily involved in university transfer (41%) and immersed in occupational programming leading directly to work (30%).

In order to meet the different learning styles and scheduling needs of its students, the Downtown Campus has developed innovative ways of instruction, including supervised, individualized instruction with video lessons. The Alternative Learning Center offers self-paced learning in Mathematics, Reading, and Writing. In addition, the Computer Commons provides technical assistance to students and assists faculty who desire to incorporate computer learning into the classroom.

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





#### Classrooms

AH  
LB  
RV  
ST

#### Offices

CO	Campus Business Services
CC/ LB/ ST	Faculty Offices
RV	Administrative Offices
CC	Student Government

#### Student Services

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



## East Campus

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

In addition to a full array of academic programming, highlighted by Computer Science and Languages, the campus also provides vocational training in the areas of Emergency Medical Technology, Pharmacy Technology, Veterinary Technology and Administration of Justice. The East Campus now includes the Northeast Community Learning Center and the Southeast Community Learning Center.



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 Atterbury Bird Sanctuary, and the City of Tucson's Clements Recreational Center. Surrounded by natural Sonoran vegetation, it maintains a relaxed, comfortable atmosphere, with buildings clustered around several small patios and shaded courtyards.

In the Fall 2003, the East Campus enrolled over 6,100 students. The newly renovated Library/Student Center supports an active Student Government office that assures East Campus students a variety of opportunities to enhance their personal success. Student Government involvement is strong, student club events are powerful and energetic, and the growing *STORM* Athletics program, including football and golf, is a focal point for campus activity.

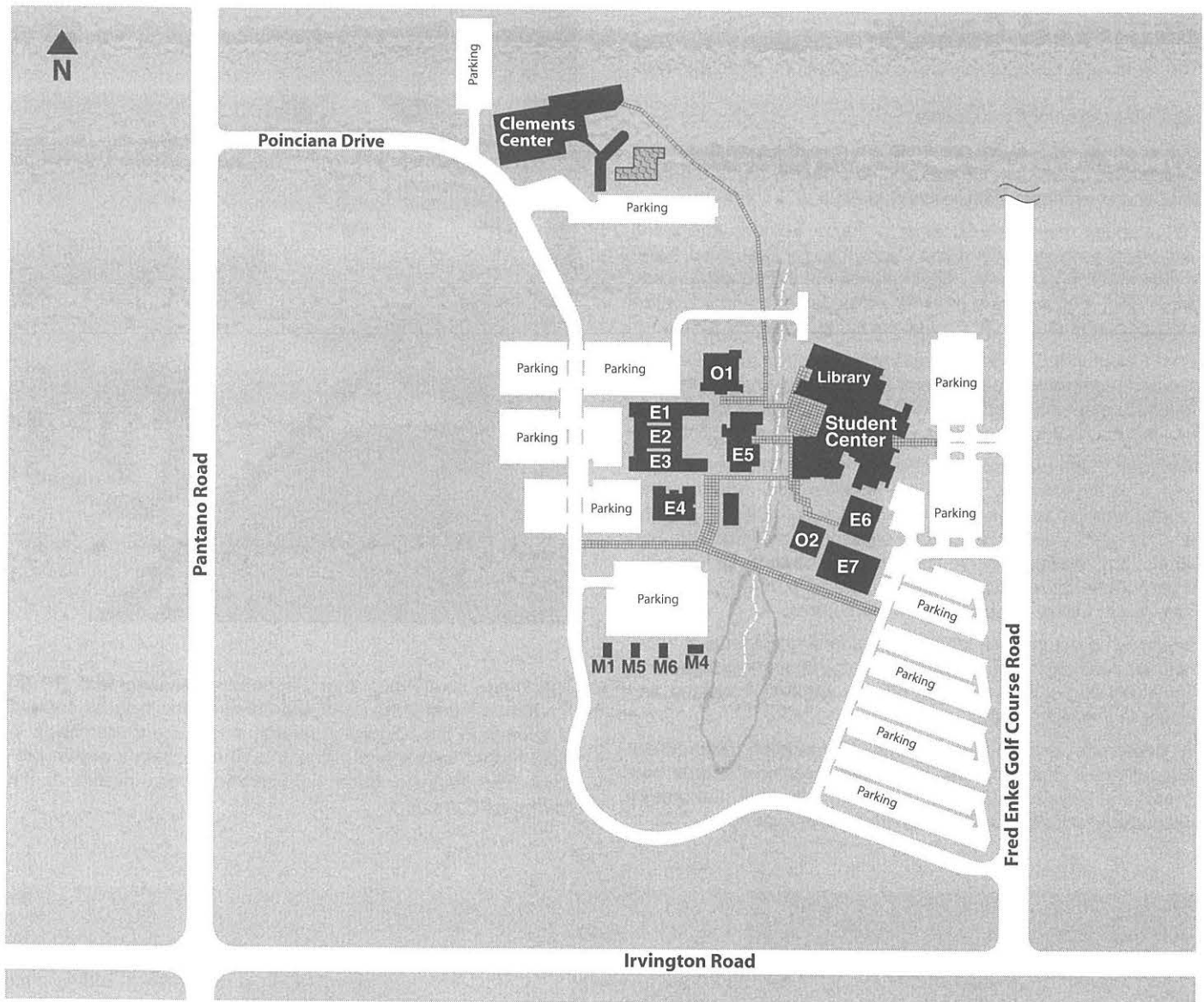
**Buildings O1, O2** Administrative Offices  
Faculty Offices

**Buildings E-1, E-2, E-3, E-7** Classrooms  
Laboratories

**Building E-4** AZ State Environmental Technology Training Center (ASETT Center)  
Classrooms  
Emergency Medical Technology (EMT)  
Public Safety and Emergency Services Institute

**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  
Laboratories  
Physical Plant  
Receiving

#### Building M-4

East Campus Outdoor Learning Center

#### Clements Center

Classrooms  
Recreation Facilities

#### Library/Student Center (LSC)

Academic Support  
Assessment  
Math Center  
Reading  
Testing  
Tutoring  
Writing Center

#### Library/Student Center (LSC) (continued)

Bookstore  
Cafeteria  
Cashier  
Community Room  
Computer Commons  
Computer Support Services  
Library  
Student Services  
Admissions/Registration  
Advising  
Career Center  
Counseling  
Dean of Student Development  
Disabled Student Resources  
Financial Aid/Veterans  
Student Life/Student Government  
Welcome

## Northwest Campus

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

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

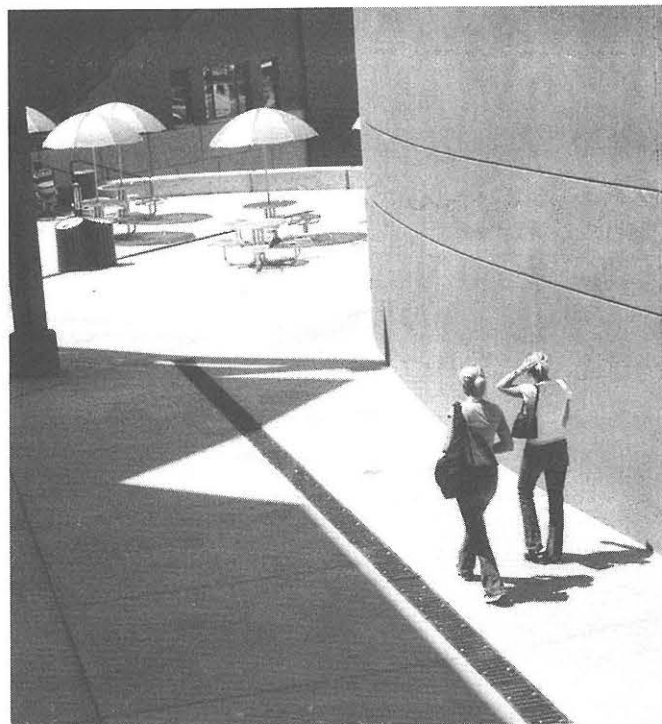
PCC students may take a full range of fitness, wellness, dance and arts classes at the YMCA. Pima County Natural Resources, Parks and Recreation occupies a significant part of the education park, establishing ballparks and other recreation facilities and education programs, and allowing PCC students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

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

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

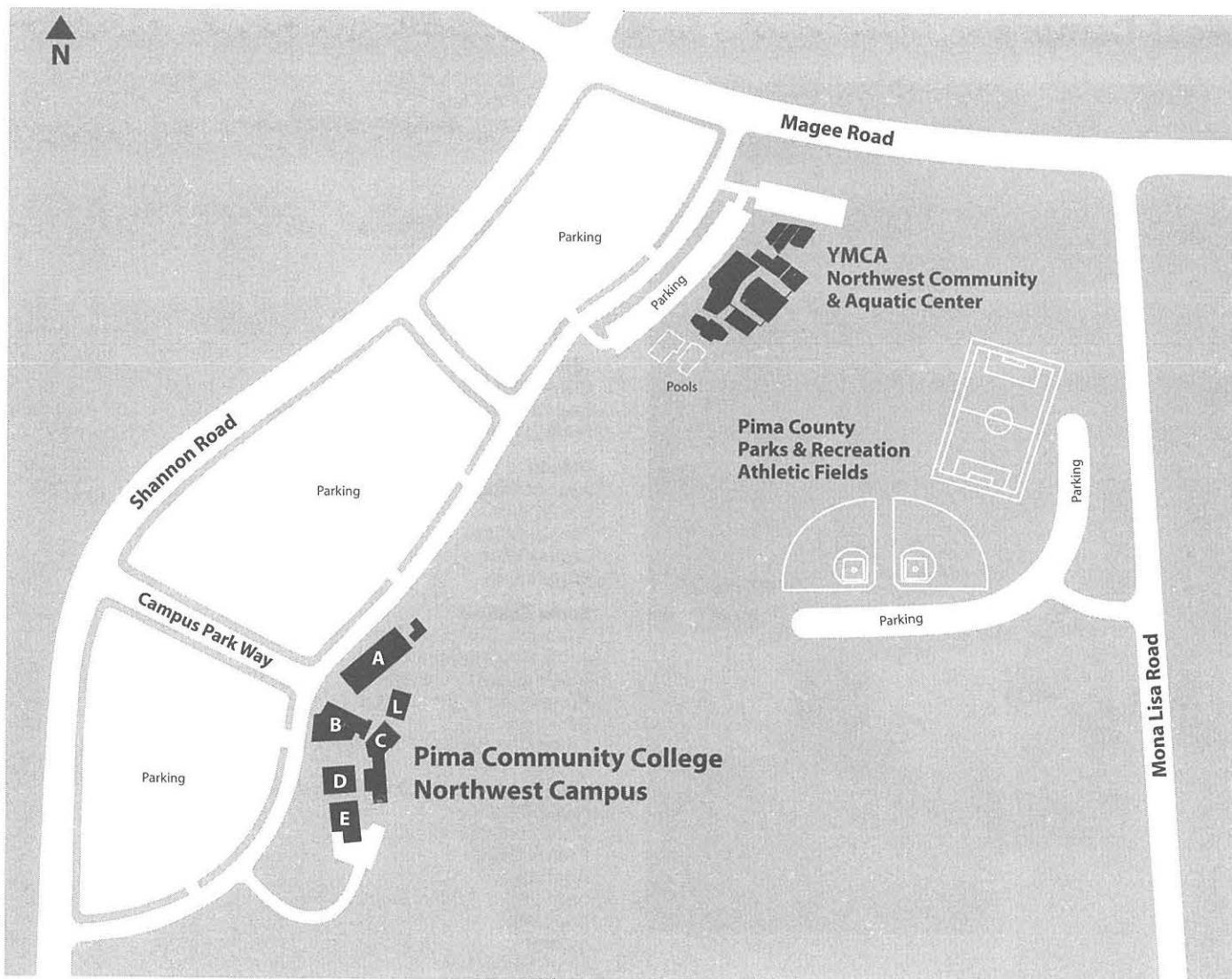
Outstanding courses are offered in accounting, information technology; business; psychology; social sciences; languages and communication; nutrition and food science; arts and humanities; and sciences and mathematics.

A degree is available in Teacher Preparation (Elementary Education). In addition, new professional/technical degree programs in Physical Therapy Assistant, Medical Laboratory Technology, and Agribusiness are under development.



The entire four-year Hotel Restaurant Management (HRM) Program is found at the Northwest Campus, and includes courses of interest to the hospitality industry and student internships in local hotels, resorts and restaurants. The bachelor's degree program from Northern Arizona University is also located at the Northwest Campus.





- Area A**    **Level 2 (Promenade)**  
Classrooms
- Area B**    **Level 1 (Boulevard)**  
Welcome Center  
Assessment  
Advising/Counseling  
Registration/Cashier  
Disabled Student Resources  
Dean, Student Development  
Administrative Servicest
- Administration
- Level 2 (Promenade)**  
Tutoring/Testing  
Library  
Computer Commons

- Level 3**  
Library  
Computer Commons
- Area C**    **Level 2 (Promenade)**  
Cafeteria  
Classrooms
- Level 3**  
Faculty Offices  
Adjunct Faculty Resources  
Dean, Instruction
- Area D**    **Level 1 (Boulevard)**  
Classrooms
- Level 2 (Promenade)**  
Bookstore  
Student Life/Lounge  
Copy Center
- Level 3**  
Classroom/Labs

- Area E**    **Level 2 (Promenade)**  
Police  
Mailroom  
Classrooms
- Level 3**  
Classroom/Labs
- Area L**    **Level 3**  
Classrooms
- YMCA Facilities**  
Classrooms  
Courts  
PCC Fitness & Sports  
Science Classes  
Pool
- Pima County Parks & Recreation Athletic Fields**  
PCC Fitness & Sports  
Science Classes



## West Campus



The largest comprehensive campus in the district, the West Campus houses six instructional divisions, 171 faculty, 137 staff and 900 adjunct faculty to offer a wide variety of degree and certificate programs, many of which are specific to this locale.

Unique to the West Campus are: a full range of Health Related Professional programs, outstanding Science and CIS departments, a rapidly growing American Sign Language and Interpreter Training program, a state-of-the-art Digital Arts program to compliment an existing comprehensive Visual and Performing Arts Division, a widely known Fitness and Sports Science program, and International Education.

Equally important are the student support and co-curricular programs for which the campus plays a leadership role within the district. These include the Office of International Student Admissions, Disabled Student Resource, 16 NJCAA intercollegiate athletic teams, indoor and recreational facilities and Center for the Performing Arts.

Designed to blend with the surrounding desert, the campus features inner courtyards and has several hiking trails running through the grounds for students to use for exercise or relaxation during study breaks. As the largest of the six campuses, the West Campus enrolled more than 13,000 students in the Fall 2003 semester.

### **ART**

Art

### **CFA**

Center for the Arts  
Division Dean, Visual and Performing Arts  
Drama  
Music

### **FSSC**

Fitness and Sport Sciences

### **GYM**

Gymnasium  
Copy Center  
Director of Athletics

### **HRP**

Classrooms  
Faculty Offices  
Nursing Skills Lab

### **Rincon**

Adjunct Faculty Center  
Classrooms  
Faculty Offices  
Lecture Rooms  
Physics Lab

### **Santa Catalina**

Academic Computer Commons  
Admissions/Registration  
Advising and Counseling  
Assessment Testing Center  
Bookstore  
Career/Transfer/Job Placement Center  
Cashier  
Dean/Division Dean Student Development  
Digital Arts  
Disabled Student Resources  
Faculty Offices  
Financial Aid  
International Student Services  
Journalism  
Library  
Learning Centers  
Welcome Center



students being homeschooled may enroll for more than eight semester credit hours with special permission. However, enrollment at PCC is not intended to supplant homeschooling.

2. Students under the age of sixteen without a high school diploma or GED must have completed the SAT (Scholastic Aptitude Test) with a composite score of 930 or more on the verbal and math portions, or the ACT (American College Test) with a composite score of 22 or higher, or have achieved a specified score on COMPASS or ASSET as per approved College policy.
3. For students under the age of sixteen, still in school, the parents or legal guardian must provide a signature granting their permission and permission from the secondary school for supplemental instruction by the College.
4. Students under the age of sixteen must submit copies of all high school academic, attendance, and discipline records for review.
5. The parent(s) or guardian(s) of a student under the age of sixteen who has been in alternative schooling must provide a copy of the state credential or certification for the alternative school, a signature by the certificate holder, and an educational plan indicating the activities the College is asked to supplement.
6. Underage students (under sixteen) and their parent(s)/legal guardian(s) are required to participate in an intake interview at the campus they hope to attend. This special admissions process includes an evaluation of student preparedness, the completion and submission of all required forms and records and an explanation of College policies and procedures. Continued enrollment for underage students granted permission to enroll will be dependent on an evaluation conducted with the student and parent/legal guardian of the satisfactory academic progress and compliance with the Pima Community College Student Code of Conduct.
7. The records of material required for entrance will be kept by the dean of Student Development and the District Office of Enrollment Services.

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

## Admission of International Students

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

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

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

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

## Border Commuter Students

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

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

## Student Residency Requirements

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

### Definitions (Section 15-1801)

In this article, unless the context otherwise requires:

1. Armed forces of the United States means the Army, the Navy, the Air Force, the Marine Corps, the Coast Guard, the commissioned corps of the United States Public Health Services and the National Oceanographic and Atmospheric Association.
2. Continuous attendance means enrollment at an educational institution in this state as a full-time student, as such term is defined by the governing body of the educational institution for a normal academic year since the beginning of the period for which continuous attendance is claimed. Such person need not attend summer sessions or other such intersession beyond the normal academic year in order to maintain continuous attendance.
3. Domicile means a person's true, fixed and permanent home, and place of habitation. It is the place where he intends to remain and to which he expects to return when he leaves without intending to establish a new domicile elsewhere.
4. Emancipated person means a person who is neither under a legal duty of service to his parent nor entitled to the support of such parent under the laws of this state.
5. Parent means a person's father or mother, or if one parent has custody, that parent, or if there is no surviving parent or the whereabouts of the parents are unknown, then a guardian of an unemancipated person if there are not circumstances indicating that such guardianship was created primarily for the purpose of conferring the status of an in-state student on such unemancipated person.

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

1. Except as otherwise provided in this article no person having a domicile elsewhere than in this state is eligible for classification as an in-state student for tuition purposes.
2. A person is not entitled to classification as an in-state student until the person is domiciled in this state for one year, except that a person whose domicile is in this state is entitled to classification as an in-state student if the person meets one of the following requirements:
  - a. The person's parent's domicile is in this state and the parent is entitled to claim the person as an exemption for state and federal tax purposes.

- b. The person is an employee of an employer which transferred the person to this state for employment purposes or the person is the spouse of such employee.
- c. The person is an employee of a school district in this state and is under contract to teach on a full-time basis, or is employed as a full-time noncertified classroom aide, at a school within that school district. For purposes of this paragraph, the person is eligible for classification as an in-state student only for courses necessary to complete the requirements for certification by the state board of education to teach in a school district in this state. No member of the person's family is eligible for classification as an in-state student if the person is eligible for classification as an in-state student pursuant to this paragraph.
3. The domicile of an unemancipated person is that of such person's parent.
4. Any unemancipated person who remains in this state when such person's parent, who had been domiciled in this state, removes from this state is entitled to classification as an in-state student until attainment of the degree for which currently enrolled, as long as such person maintains continuous attendance.
5. A person who is a member of the armed forces of the United States and who is stationed in this state pursuant to military orders or who is the spouse or a dependent child as defined in section 43-1001 of a person who is a member of the armed forces of the United States and who is stationed in this state pursuant to military orders is entitled to classification as an in-state student. The student, while in continuous attendance toward the degree for which currently enrolled, does not lose in-state student classification.
6. A person who is a member of the armed forces of the United States or the spouse or a dependent as defined in section 43-1001 of a member of the armed forces of the United States is entitled to classification as an in-state student if the member of the armed forces has claimed this state as the person's state of legal residence for at least twelve consecutive months before the member of the armed forces, spouse or dependent enrolls in a university under the jurisdiction of the Arizona board of regents or a community college under the jurisdiction of a community college district governing board. For purposes of this subsection, the requirement that a person be domiciled in this state for one year before enrollment to qualify for in-state student classification does not apply.
7. A person who is honorably discharged from the armed forces of the United States shall be granted immediate classification as an in-state student on honorable discharge from the armed forces and, while in continuous attendance toward the degree for which currently enrolled, does not lose in-state student classification if the person has met all of the following requirements:
  - a. Declared Arizona as the person's legal residence with the person's branch of service at least one year prior to discharge from the armed forces.
  - b. Demonstrated objective evidence of intent to be a resident of Arizona which, for the purposes of this section, includes at least one of the following:
    - (1) An Arizona driver license.
    - (2) Arizona motor vehicle registration.
    - (3) Employment history in Arizona.
    - (4) Arizona voter registration.
    - (5) Transfer of major banking services to Arizona.
    - (6) Change of permanent address on all pertinent records.
    - (7) Other materials of whatever kind or source relevant to domicile or residency status.
  - c. Filed an Arizona income tax return with the department of revenue during the previous tax year.
8. A person who is a member of an Indian tribe recognized by the United States department of the interior whose reservation

land lies in this state and extends into another state and who is a resident of the reservation is entitled to classification as an in-state student.

#### **County Residency Status (Section 15-1802-01)**

- 1 Each community college district shall adopt policies regarding domicile requirements that include, at a minimum, the following:
  - a. Each student shall have the question of domicile determined before the time of registration and payment of fees. It is the responsibility of the student to register under the correct domicile determination.
  - b. Enforcement of domicile requirements shall be the responsibility of the chief executive officer of each community college district.
  - c. The chief executive officer of each community college district shall designate a representative at each college or campus who is responsible for documents and who is qualified to administer oaths as defined in section 41-311 in connection with statements and testimony relative to student domicile status for tuition purposes. Affidavits shall be submitted on a form prescribed by the state board of directors for community colleges.
  - d. In addition to the requirements prescribed in section 15-1802, subsection G, any of the following may be used in determining a student's domicile:
    - (1) An income tax return.
    - (2) The place of graduation from high school.
    - (3) The source of financial support.
    - (4) Dependency as indicated on a federal income tax return.
    - (5) Ownership of real property.
    - (6) A notarized statement of a landlord or employer.
    - (7) Bank accounts.
2. Each community college district shall adopt policies regarding classification procedures for a student for nonresident or resident tuition purposes that include, at a minimum, the following:
  - a. In determining a student's classification, the college may consider all evidence, written or oral, presented by the student and any other information received from any source that is relevant to determining classification. The college may request written sworn statements or sworn testimony of the student.
  - b. The decision as to classification shall be made by the representative designated pursuant to subsection A, paragraph 3 of this section. In making the decision the representative may consult with other college officials. Decisions by the representative shall be made as soon as possible after all relevant information is acquired.
  - c. If the representative classifies the student as a nonresident for tuition purposes, the decision shall be communicated to the student by mail to the most recent address furnished to the college. If the student is classified as a nonresident for tuition purposes, the student must make satisfactory provision for payment of nonresident tuition and other charges.
- 3 Each community college district shall adopt a review and appeals process for students contesting a domicile decision by the college.
4. An individual domiciled in this state, but not in a community college district, shall be required to sign a notarized statement as to county residency stating that the individual has resided in the county for at least fifty days before the first day of classes.

#### **Alien In-State Student Status (Section 15-1803)**

An alien is entitled to classification as an in-state refugee student if such person has been granted refugee status in accordance with all applicable laws of the United States and has met all other requirements for domicile.



**Presumption Relating To Student Status (Section 15-1804)**

Unless the contrary appears to the satisfaction of the registering authority of the community college or university at which a student is registering, it shall be presumed that:

1. No emancipated person has established a domicile in this state while attending any educational institution in this state as a full-time student, as such status is defined by the State Board of Directors for Community Colleges or the Arizona Board of Regents, in the absence of a clear demonstration to the contrary.
2. Once established, a domicile is not lost by mere absence unaccompanied by intention to establish a new domicile.
3. A person who has been domiciled in this state immediately prior to becoming a member of the armed forces of the United States shall not lose in-state status by reason of such person's presence in any other state or country while a member of the armed forces of the United States.

**Student Status Regulations (Section 15-1805)**

1. The Arizona board of regents shall adopt guidelines applicable to all institutions under their jurisdiction that will ensure uniform criteria to aid the institutions in determining the tuition status of any student and that will establish uniform procedures for review of that status.
2. Community college districts shall adopt policies applicable to all institutions under their jurisdiction that will ensure uniform criteria to aid the institutions in determining the tuition status of any student and that will establish uniform procedures for review of that status.

**Admissions and Enrollments Regulations (Section 15-1805.01)**

1. Admissions to the community colleges in this state may be granted to any person who meets any one of the following criteria:
  - a. Is a graduate of a high school that is accredited by a regional accrediting association as defined by the United States office of education or approved by a state board of education or other appropriate state educational agency.
  - b. Has a high school certificate of equivalency.
  - c. Is eighteen years of age or older and demonstrates evidence of potential success in the community college.
  - d. Is a transfer student in good standing from another college or university.
3. Each community college district shall adopt policies regarding the admission of students under eighteen years of age that include, at a minimum, the following requirements:
  - a. Admission to the community colleges in this state shall be granted to any student who is under eighteen years of age and who achieves a composite score of 930 or more on the scholastic aptitude test or a composite score of twenty-two or more on the American college test.
  - b. A community college may limit the number of semester hours in which the student may enroll to not more than six credit hours.
3. Students may be admitted on an individual basis with the approval of college officials if the student meets the established requirements of the courses for which the student enrolls and the college officials determine that the student's admission is in the best interest of the student.

**Testimony Concerning Student Status: Designation of Persons to Administer Oaths (Section 15-1806)**

The Arizona Board of Regents and each community college district shall designate a person employed at each institution under their respective jurisdictions to administer oaths or affirmations in connection with the taking of testimony relative to student status for tuition purposes.

**Concurrent Enrollment; Nonresident Tuition (Section 15-1807)**

1. It is unlawful for any nonresident student to register concurrently in two or more public institutions of higher education in this state including any university or community college for a combined student credit hour enrollment of more than six semester hours without payment of nonresident tuition at one of such institutions.

2. Any nonresident student desiring to enroll concurrently in two or more public institutions of higher education in this state including any university or community college for a combined total of more than six semester hours who is not subject to nonresident tuition at any of such institutions shall pay the nonresident tuition at the institution of his choice in an amount equivalent to nonresident tuition at such institution for the combined total of semester hours for which the nonresident student is currently enrolled.

**Evidence of Domicile**

In some cases, a student may have to present documents for the College to verify their in-state status. The State Board of Directors for Community Colleges Regulation 7-1-23 provides the following guidelines regarding documents that students may present:

1. An affidavit signed by the student must be filed with the person responsible for verifying domicile.
2. One or more of the following may be used in determining a student's domicile in Arizona:
  - a. Driver's license
  - b. Income tax return
  - c. Voter registration
  - d. Automobile registration
  - e. Place of graduation from high school
  - f. Dependency as indicated on federal income tax return
  - g. Ownership of real property
  - h. Notarized statement of landlord or employer
  - i. Bank accounts
  - j. Other relevant information

**Required Use of Social Security Number and Assignment of Student Identification Number**

PCC is **required** to collect the Social Security Number of **all** students who are US Citizens, Resident Aliens, or non-citizens (who have been issued a Social Security Number) on the Application for Admission; all local, state or Federal student financial aid applications/forms; or any forms required for College employment. **Students are not required to use their Social Security Number as their Student ID Number.**

New students may use their Social Security Number as their Assigned Student ID Number by submitting a written request with photo ID at any PCC campus or center admissions location.

**Before the First Semester**

New Student Requirements for Assessment, Advising, and Orientation

**Assessments**

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

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

## Requirements

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

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

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

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

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

## Times

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

## Special Accommodations

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

## Preparation

To prepare for the basic skills assessments in reading, writing and mathematics, a sample test is available for a small charge at any campus bookstore, for review at any campus library, or on the Web site at: <http://cc.pima.edu/vac/a2fass.htm>.

## Other Testing Services

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

## Advising

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

## Requirements

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

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

## Advising Resources for Students

All students are urged to make use of the College Catalog, Schedule of Classes, and the Student Handbook when selecting

courses or developing an educational plan. These publications are available at all Advising and Counseling Centers or at <http://www.pima.edu>. Catalogs may be purchased for a small fee at any campus bookstore or by calling (520) 206-4500.

## Exceptions to Assessment, Orientation and Advising Requirements

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

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

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

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

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

## Orientation

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

## Requirement

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

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

## How to enroll in Orientation

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

## Declaring a Program of Study

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

## Transfer of Credits into PCC

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

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

- Southern Association of Colleges and Schools
- Western Association of Schools and Colleges

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

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

### Military Servicemembers Opportunity College

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

### Credit by Examination

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

Please note that a student cannot receive credit by examination for a course that is lower than the one in which s/he is currently enrolled or for one in which s/he has already received credit. Credit by examination may or may not transfer to other colleges or universities. In addition, credit by examination does not fulfill the requirement of completing 15 credits at PCC. It also cannot be used in qualifying a student for veterans benefits. Contact PCC's Veterans Office at 206-4715 for more information. Students cannot receive financial assistance for credit by examination.

Credit by examination shall include:

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

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

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

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

The International Baccalaureate Diploma Program is also offered in select high schools. This rigorous 2-year course of pre-university

studies leads to exams that can be used to qualify for college credit. Pima Community College accepts certain higher-level IB exams for credit, see the following IB table. For more information about the IB Program visit the main Web site IB Diploma Programme (<http://www.ibo.org/ibo>).

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

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

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

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

### Advanced Placement (AP) Table

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>American History</b>	4 or 5	Social and Behavioral Sciences	HIS 141 & 142	6
<b>Art History</b>	3, 4 or 5	Humanities and Fine Arts—Humanities	ART 130 & 131	6
<b>Biology</b>	4 or 5	Biological and Physical Sciences	BIO 181IN & 182IN	8
	3	Biological and Physical Sciences	BIO 100	4
<b>Chemistry</b>	4 or 5	Biological and Physical Sciences	CHM 151IN & 152IN	10
	3	Biological and Physical Sciences	CHM 151IN	5
<b>Computer Science</b>				
A exam	4 or 5	None	CIS 131	5
A/B exam	5	None	CIS 131 & 230	10
A/B exam	3 or 4	None	CIS 131	5
<b>Economics</b>				
Micro-economics	4 or 5	Social and Behavioral Sciences	ECN 201	3
Macro-economics	4 or 5	Social and Behavioral Sciences	ECN 202	3
Micro-Macro	4 or 5	Social and Behavioral Sciences	ECN 200	3
<b>English Literature/Composition</b>	4 or 5	3 credits of English Composition	WRT 101	3



**Advanced Placement (AP) Table**

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit	Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Language/Composition</b>	4 or 5	3 credits of English Composition	WRT 101	3	<b>Mathematics BC</b>	4 or 5	Mathematics	MAT 220 & 231	9
						3	Mathematics	MAT 220	5
<b>Environmental Science</b>	4 or 5	Biological and Physical Sciences	ENV 104 & 105	4	<b>Music Literature</b>	5	Humanities and Fine Arts—Humanities	MUS 201 & 202	6
<b>European History</b>	4 or 5	Social and Behavioral Sciences	HIS 101 & 102	6		4	Humanities and Fine Arts—Humanities	MUS 201	3
<b>French Language</b>	5	Other Requirements—Second Language	FRE 101, 102, 201 & 202	16		3	Humanities and Fine Arts—Humanities	MUS 151	3
	4	Other Requirements—Second Language	FRE 101, 102 & 201	12	<b>Music Theory</b>	5	Humanities and Fine Arts—Art List	MUS 125 & 127	4
	3	Other Requirements—Second Language	FRE 101 & 102	8		3 or 4	Humanities and Fine Arts—Art List	MUS 125	3
	2	Other Requirements—Second Language	FRE 101	4		2	Humanities and Fine Arts—Art List	MUS 102	3
<b>French Literature</b>	5	Other Requirements—Second Language	FRE 101, 102, 201 & 202	16	<b>Physics B</b>	3, 4 or 5	Biological and Physical Sciences	PHY 121/121LB & 122/122LB	10
	4	Other Requirements—Second Language	FRE 101, 102 & 201	12	<b>Physics CE</b>	4 or 5	Biological and Physical Sciences	PHY 216/216LB	5
	3	Other Requirements—Second Language	FRE 101 & 102	8	<b>Physics CM</b>	4 or 5	Biological and Physical Sciences	PHY 210/210LB	5
	2	Other Requirements—Second Language	FRE 101	4	<b>Political Science</b>				
<b>German</b>	5	Other Requirements—Second Language	GER 101, 102, 201 & 202	16	American Government & Politics	3, 4 or 5	Social and Behavioral Sciences	POS 110	3
	4	Other Requirements—Second Language	GER 101, 102 & 201	12	Comparative Government & Politics	3, 4 or 5	Social and Behavioral Sciences	POS 140	3
	3	Other Requirements—Second Language	GER 101 & 102	8	<b>Psychology</b>	4 or 5	Social and Behavioral Sciences	PSY 101	4
	2	Other Requirements—Second Language	GER 101	4	<b>Spanish Language</b>	5	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
<b>Latin- Virgil</b>	5	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16		4	Other Requirements—Second Language	SPA 101, 102 & 201	12
	4	Other Requirements—Second Language	LAT 101, 102 & 201	12		3	Other Requirements—Second Language	SPA 101 & 102	8
	3	Other Requirements—Second Language	LAT 101 & 102	8		2	Other Requirements—Second Language	SPA 101	4
	2	Other Requirements—Second Language	LAT 101	4	<b>Spanish Language &amp; Literature</b>	5	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
<b>Latin- Literature</b>	5	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16		4	Other Requirements—Second Language	SPA 101, 102 & 201	12
	4	Other Requirements—Second Language	LAT 101, 102, & 201	12		3	Other Requirements—Second Language	SPA 101 & 102	8
	3	Other Requirements—Second Language	LAT 101 & 102	8		2	Other Requirements—Second Language	SPA 101	4
	2	Other Requirements—Second Language	LAT 101	4					
<b>Math Statistics</b>	3, 4 or 5	Mathematics	MAT 167	3					
<b>Mathematics AB</b>	3, 4 or 5	Mathematics	MAT 220	3					

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

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Spanish Literature</b>	5	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	SPA 101, 102 & 201	12
	3	Other Requirements—Second Language	SPA 101 & 102	8
	2	Other Requirements—Second Language	SPA 101	4

### International Baccalaureate (IB) Table

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Chemistry</b>		None	None	None
<b>Computer Science</b>	5	Other Requirements—(b)Computer Science, Critical Thinking, Logic, Mathematics or Science	CIS 100	3
<b>Biology</b>	5	Biological and Physical Sciences	BIO 181IN & 182IN	8
	4	Biological and Physical Sciences	BIO 181IN	4
<b>Economics</b>	5	Social and Behavioral Sciences	ECN 200	3
<b>English</b>	5	English Composition	WRT 101	3
<b>French</b>	5	Other Requirements—Second Language	FRE 101 & 102	8
<b>Geography</b>	5	Biological and Physical Sciences	GEO 101	4
<b>German</b>	6	Other Requirements—Second Language	GER 101, 102, 201 & 202	16
	5	Other Requirements—Second Language	GER 101, 102 & 201	12
	4	Other Requirements—Second Language	GER 101 & 102	8
<b>Latin</b>	7	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16
	6	Other Requirements—Second Language	LAT 101, 102, & 201	12
	5	Other Requirements—Second Language	LAT 101 & 102	8
	4	Other Requirements—Second Language	LAT 101 & 102	8
<b>Mathematics</b>	5	Mathematics (except AGECE-B and AGECE-S)	MAT 151	4
<b>Music</b>	5	Humanities and Fine Arts—Humanities	MUS 201 & 202	6

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Physics</b>	5	Biological and Physical Sciences	PHY 210, 216 & 221	14
<b>Psychology</b>	5	Social and Behavioral Sciences	PSY 101	3
<b>Spanish</b>	5	Other Requirements—Second Language	SPA 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	SPA 101 & 102	8

### College-Level Examination Program (CLEP)

The College-level Examination Program is a means by which students can obtain college credits without having to enroll formally in the courses. Pima Community College accepts for college credit both the General and the Subject examinations of the CLEP, providing satisfactory scores are attained. Students must pay a registration service fee and an examination fee for each test. Two types of exams are available under the program.

- 1. General Examinations**—Students can take five General Examinations: College Mathematics, English Composition, Humanities, Natural Sciences, and Social Sciences/History. These General Examinations are NOT offered at Pima Community College but are available through the Testing Office at the University of Arizona, Old Main, Room 223. For more information, call the Testing Office at the University of Arizona at 621-7589 or visit their Website at: <http://www.ulc.arizona.edu/testing>.
- 2. Subject Examinations**—The CLEP also offers 29 subject examinations that are more specific. Subject Examinations are NOT offered at Pima Community College but are available through the Testing Office at the University of Arizona, Old Main, Room 223. For more information, call the Testing Office at the University of Arizona at 621-7589 or visit their Website at: <http://www.ulc.arizona.edu/testing>.

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

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

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

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

### 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 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.

### CLEP

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
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### CLEP General Exams

<b>College Mathematics</b>	500	None	MAT 122	3
<b>English Composition</b>	500	None	WRT 100	3
<b>Humanities</b>	500	Humanities and Fine Arts—Humanities	HUM 110	4
<b>Natural Science</b>	565	Biological and Physical Science requirements	BIO, departmental elective credits	4
<b>Social Science/History</b>	500	Social and Behavioral Science General Education requirements	HIS, departmental elective credits	3

### CLEP Subject Exams

<b>American Government</b>	50	Social and Behavioral Science General Education requirements	POS 110	3
<b>American Literature</b>	55	Humanities and Fine Arts/Historical Perspective General Education requirements	LIT 265	3
<b>Analyzing &amp; Interpreting Literature</b>	50	None	LIT 286	3
<b>Calculus with Elementary Functions</b>	50	Math General Education requirement for all AGECS	MAT 220	3
<b>College Algebra</b>	50	Math General Education requirement for AGECS-A	MAT 151	4
<b>College Algebra-Trigonometry</b>	50	Math General Education requirement for AGECS-A	MAT 151 & 182	7

### Subject Exams (continued)

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>College-Level French Language</b>	(a)54	Requirements—Second Language General Education requirements	(a)FRE 101, 102, 201 & 202	(a)16
	(b)45		(b)FRE 101, 102 & 201	(b)12
	(c)41		(c)FRE 101 & 102	(c)8
<b>College-Level German Language</b>	(a)54	Satisfies Other Requirements—Second Language General Education requirements	(a)GER 101, 102, 201 & 202	(a)16
	(b)40		(c)GER 101 & 102	(c)8
<b>College-Level Spanish Language</b>	(a)54	Satisfies Other Requirements—Second Language General Education requirements	(a)SPA 101, 102, 201 & 202	(a)16
	(b)47		(b)SPA 101 & 102	(b)8
<b>English Literature</b>	55	Fulfills 3 credits of Humanities and Fine Arts/Historical Perspective General Education requirements	LIT 260	3
<b>Freshman College Composition</b>	60	Satisfies English Composition General Education requirement	WRT 101 & 102	6
<b>General Biology</b>	50	Satisfies Biological and Physical Science General Education requirements	BIO 100 and 4 credits of BIO elective credit	8
<b>General Chemistry</b>	50	Satisfies Biological and Physical Science General Education requirements	CHM 151 & 152	10
<b>History of the United States I: Early Colonization to 1877</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 141	3
<b>History of the United States II: 1865 to Present</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 142	3



## CLEP

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Human Growth &amp; Development</b>	50	None	ECE 106	3
<b>Information Systems and Computer Applications</b>				
	50	Fulfills 3 credits of Other Requirements General Education requirements	CIS 100	3
<b>Introduction to Educational Psychology</b>				
	50	None	ECE, departmental elective credit	3
<b>Principles of Accounting</b>				
	50	None	ACC 100	3
<b>Introductory Business Law</b>				
	50	None	BUS, departmental elective credit	3
<b>Introductory Psychology</b>				
	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements	PSY 101	4
<b>Introductory Sociology</b>				
	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements	SOC 101	3
<b>Principles of Macro-Economics</b>				
	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements	ECN 202	3
<b>Principles of Management</b>				
	50	None	MGT, departmental elective credit	3
<b>Principles of Marketing</b>				
	50	None	MKT 111	3
<b>Principles of Micro-Economics</b>				
	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements	ECN 201	3
<b>Trigonometry</b>				
	50	Fulfills 3 credits of the Mathematics General Education requirement for an AGEC-A or Occupational General Education	MAT 182	3
<b>Western Civilization I: Ancient Near East to 1648</b>				
	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 101	3

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
<b>Western Civilization II: 1648 to the Present</b>	50	Fulfills 3 credits of Social and Behavioral Science General Education requirements OR 3 credits of Humanities and Fine Arts General Education requirements	HIS 102	3

## Enrolling in Classes

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

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

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

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

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

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

For more information:

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

## Maximum Credit Hours Per Semester

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

## Course Prerequisites

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

## Important Student Information

### Student Rights and Responsibilities

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

### If You Have a Problem . . .

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

### Religious Observances

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

### Family Educational Rights and Privacy Act (FERPA)

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

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

### Information Covered under the Act

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

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

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

### Third Party Transactions

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

## Academic Reporting

Throughout the United States, colleges and universities monitor the progress students make in achieving their academic goals. PCC is pleased to provide information regarding our institution's graduation/completion and transfer rates, in compliance with the Higher Education Act of 1965, as amended. Student success information, including 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 distinction. This grade may be given at the student's request and the instructor's option.
- I – Incomplete: A record of Incomplete as a grade can be given only at the student's request and the instructor's option. The instructor who gives the grade of I will give the student a form listing the work needed and a deadline for completion. When the work is finished, the instructor is responsible for grading the work and sending a Change of Grade form to the admissions office. If the student does not finish the work required and a final grade form is not sent within one year, the Incomplete will automatically be changed to an F.
- IP – Work "in progress" in open entry/open exit class: A record of IP as a grade will be made when a student is making satisfactory progress in a class that crosses sessions in start and end dates. When the work is finished, the instructor is responsible for grading the work and sending a Change of Grade form to the admissions office. If the student does not finish the work required and a final grade form is not sent within one year, the Incomplete will automatically be changed to an F.
- W – Official Withdrawal: A student can request this grade during the first two-thirds of any session. The instructor may give this grade on or before the withdrawal deadline to students who have stopped attending the class before that deadline.
- Y – Special Withdrawal: All students are informed of the possible negative effects of the Y grade. The decision to grant the special withdrawal is based on what is best for the student.
- X – An X placed next to the grade means the grade was earned by a proficiency or assessment 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 transcript of grades and 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.

### Grade Point Average (GPA) Calculation

The GPA is figured by multiplying the number of credit hours for each class by the number of points for the grade given and dividing the sum of the points by the total number of credit hours of A,

B, C, D, and F grades. The GPA is based only on work completed at Pima Community College. A complete record of all credit courses attempted at the College is kept for each student.

### Grade Reports

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

### Appeal of Grades

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

### Course Repeat Grades

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

## Academic Standards of Progress

This section covers:

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

### Good Academic Standing

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

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

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

### Official Withdrawal Guidelines

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

### Academic Alert

Students will be placed on academic alert when:

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

The academic alert system:

- Informs students of academic status.
- Allows students one semester to raise their GPA to the minimum required for good academic standing.

- Advises students of available College resources that may help improve their academic performance.

### Academic Disqualification

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

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

### Appeal of Academic Disqualification

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

### Academic Reinstatement

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

### Academic Renewal

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

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

## Student Classification and Standing

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

### Full-Time Student

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

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

### Part-Time Student

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

### Freshman

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

### Sophomore

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



# Costs and Payments

## Tuition and Fees

The following information reflects the College's tuition, fee, and refund policies for the Fall 2004, Spring 2005, and Summer 2005 (all sessions) semesters. **Tuition, fees, and refunds are subject to change. Please refer to a current *Schedule of Classes* for the most up to date information.**

### Tuition – All Terms

Credits	Resident	Non-resident
1	\$42.00	\$72.00
2	84.00	144.00
3	126.00	216.00
4	168.00	288.00
5	210.00	360.00
6	252.00	432.00
7	294.00	1477.00
8	336.00	1688.00
9	378.00	1899.00
10	420.00	2110.00
11	462.00	2321.00
12	504.00	2532.00
13	546.00	2743.00
14	588.00	2954.00
15	630.00	3165.00
16	672.00	3376.00
17	714.00	3587.00
18	756.00	3798.00
19	798.00	4009.00
20	840.00	4220.00
21	882.00	4431.00
22	924.00	4642.00
23	966.00	4853.00
24	1008.00	5064.00
25	1050.00	5275.00
26	1092.00	5486.00
27	1134.00	5697.00
28	1176.00	5908.00
29	1218.00	6119.00
30	1260.00	6330.00

### Tuition (per class) – Audit Classes

Credits	Resident	Non-resident
No credit	\$42.00	\$42.00

### Current Fees *(rates subject to change)*

Student Services Fee (per credit) .....\$2.50

### Processing Fees

Semester Processing Fee	.....\$5.00
Out-of-Country Application Fee	.....\$25.00
Transcripts (per copy)	.....\$5.00
Transcripts (rush copy)	.....\$10.00
Transcript FedEx Fee	.....\$7.50
Degree/Certificate Application	.....\$15.00
Aviation Technology Exam	.....\$225.00
Career Interest Test	.....Not to exceed \$20.00
GED Test	.....\$50.00
GED Test (repeat of each section)	.....\$10.00
ID Card	.....\$2.00
Deferred Tuition Payment Plan Processing Fee (non-refundable)	.....\$15.00
International Student Insurance Fee (F-1 Students)	.....\$325.00
Telecourse (per credit hour)	.....\$10.00
Web Course (per credit hour)	.....\$15.00

### Miscellaneous Credit Course Fees

Misc. Class Fee	..... Not to exceed \$50 per course (recovery of extraordinary course-specific costs)
EMT Liability Insurance (clinical course)	.....\$60.00
Other Health Science Liability Insurance (per course)	.....\$15.00
EMT (PSESI)	.....\$34.00
Fire Fighter I & II (PSESI)	.....\$135.00
Firetruck Driver/Operator (PSESI)	.....\$180.00
Health/Fitness Center user fee	.....\$35.00
Music Lessons (individual) 1/2 hour per week	.....\$304.00
1 hour per week	.....\$608.00
Aviation Technology	..... Not to exceed \$75.00
Course-Related Field Trip	..... Based on actual cost of field trip
Culinary Arts	.....\$140.00
Digital Arts	..... Not to exceed \$60.00
Education/Post-Baccalaureate Programs	.....\$875.00
Truck Driver Training - Class A	.....\$2,992.00
Truck Driver Training - Straight	.....\$2,160.00
Truck Driver Training - Basic	.....\$4,320.00
Truck Driver Training - Commercial	.....\$5,592.00
Truck Driver Training - Professional	.....\$7,314.00

Check the course listings in the *Schedule of Classes* for additional fees. You can also call or stop by any campus admissions office for more information.

### Financial Holds (encumbrances)

If you owe an outstanding debt to the College you will not be allowed to register, or receive any other services, until your debt is paid in full. You can pay your debt at any campus cashier's office during normal working hours. If your debt has been placed with a collection agency you will have to deal directly with the agency to pay off your debt. If you have any questions about your debt, please contact the Bursar's Office at (520) 206-4574, 4547, or 4548. **For an immediate release of your financial hold you will need to pay your debt, in person, with cash, money order or your credit card. You cannot pay over the phone.**

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

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

## Tuition and Fees Payment Methods

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

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

Tuition and Fees may be paid via:

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

### Payment Options

Pima Community College offers a variety of payment options. You can make your payment directly at any campus Cashier's Office or you can pay online, by phone or by mail.

#### Paying Online

You can pay online using your credit card or check. Log into the Pima Community College Web site at [www.pima.edu](http://www.pima.edu).

#### Paying in Person

You can pay in person at any campus Cashier's Office. Please call the campus information line for the Cashier's Office hours of operation. If you are paying in person by check, you will be required to show a picture ID.

#### Paying by Phone

Credit card payments can be made over the phone during the telephone registration process (MAX 2000, (520) 206-4880, credit cards only). You cannot make a payment over the phone directly to a person.

#### Paying by Mail

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

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

Pima Community College offers short term tuition loans for Arizona residents and eligible military service veterans. For more information on tuition loans, visit any campus cashier's office. Eligible veterans at the Downtown Campus need to visit the admissions office to complete their loan paperwork.

#### Additional Notes on Payments

- The College will not accept counter checks (checks printed without a name or address), second-party, out-of-country, or post-dated checks, or partial payments on tuition.
- College employees will write Student Identification Numbers on checks when students fail to do so.
- Non-sufficient funds (NSF) payments are subject to a \$25.00 penalty.
- NSF payments may be forwarded to a collection agency and/or the Pima County Attorney's Office for collection.

### Payment with Financial Award

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

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

If you have any questions regarding the status of your financial award, you may contact any campus financial aid office or call the Financial Aid Hotline at (520) 206-4950.

## Student Refund Policy for Credit Courses

### Regular Refund Policy

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

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

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

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

### Regular Refund Schedule

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

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

### Special Refunds Policy

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

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

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

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

Refer to the *Schedule of Classes* for specific dates

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

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

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

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

Example:

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

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

1. Determine the percentage of the period that the student completed ( $\text{Days attended} \div \text{Days in period} = \text{Percentage completed}$ ).
2. Apply this same percentage to the total awarded Title IV aid for which the student established eligibility before withdrawing ( $\text{Total aid disbursable} \times \text{Percentage completed} = \text{Earned aid}$ ).
3. Subtract earned aid from disbursed aid. This is the earned aid. ( $\text{Earned aid} - \text{Disbursed aid} = \text{Unearned aid}$ .)
4. Distribute responsibility for returning unearned aid by the College and the student.



The College's share is determined first by taking the lesser of:

- The total amount of earned aid; or
- An amount equal to the student's tuition and fee charges multiplied by the percentage of aid unearned.

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

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

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

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

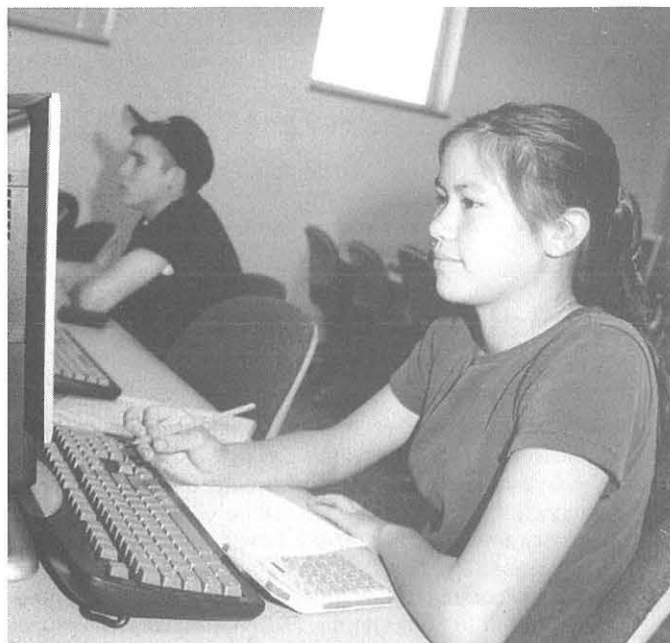
- The College returns unearned aid in the order shown up to the full amount disbursed from one program before moving on to the next.
- Once the College's share has been distributed back to the programs, then the student's share is allocated in its entirety. However, any portion of the unearned aid owed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

### Withdrawals

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

- If a student officially notified the College of his or her intent to withdraw, the withdrawal date used is the date on which the student began the official withdrawal process.
- If a student withdraws without notifying the College, the withdrawal date used is the midpoint (50%) of the payment or enrollment period.
- If a student is enrolled in a program where attendance is required, the withdrawal date used is the student's last day of academic attendance.
- If a student withdraws before classes begin for the applicable semester, the student must repay all financial aid monies issued.
- If a student withdraws from the College, all future financial aid awards for the academic year and summer session(s) will be cancelled immediately.

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



## Student Refund Policy for Noncredit Activities and Study Tours

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

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

### Cancellation Policies for Study Tours

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

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

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

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

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

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

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

# Financial Assistance

## Financial Aid/Scholarships

### General Information

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

The Free Application for Federal Student Aid (FAFSA) is available at any campus financial aid office.

In order to receive first consideration for the limited financial assistance funds that are available for the award year, **students must complete and send their FAFSA to the Federal Government by March 15.** Applications can then be processed and return to PCC by the **College's priority date of April 2.**

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

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

For more information, see the current *Student Handbook* and *Financial Aid Guide*, or call the Financial Aid Information Line at (520) 206-4950.

### Federal and State Financial Aid Programs

#### Federal Pell Grants

The federal government funds the Pell Grant Program to provide financial assistance for students who have not earned a bachelor's or professional degree. The federal government establishes who is qualified. It bases the awards to students on their dependency status (if a parent or guardian provides for them), enrollment, and living accommodations (if you live at home, rent, or own). The Pell Grant, unlike a loan, does not have to be repaid.

#### Federal Stafford and Direct Loan Programs

The Federal Stafford and Direct Loan Programs offer "subsidized" and "unsubsidized" loans. Loans may be made through a bank or credit union that participates in the Stafford Loan Program, or they may be made directly by the school (the Direct Loan Program). A subsidized loan is awarded on the basis of financial need. If a student qualifies for a subsidized loan, the federal government pays the interest on the loan until the student starts repaying it. On the other hand, an unsubsidized loan is not awarded on the basis of need. If a student qualifies for an unsubsidized loan, the student pays the interest from the date the loan is given until the loan is

repaid in full. Students have the choice of paying the interest as it accrues (charged every month) or to let it accumulate (build up) and add the interest to the loan. Students can receive both subsidized and unsubsidized loans. Students must start to repay the loan or loans beginning six (6) months after they graduate, leave school, or drop below half-time enrollment.

#### Federal Plus Loan Program

Federal Plus Loan Program is for parents who have students living with them as dependents. The loans are made directly by the school (the Direct Plus Loan Program) or through a bank or credit union that participates in the Stafford Loan Program. This loan program enables parents with good credit histories to borrow funds to pay for the education expenses of each child who is a dependent and an undergraduate student enrolled at least half-time. Parents cannot receive more than the cost of education, with the amount of any other financial aid received also deducted. The interest rate is variable, but it will never exceed nine (9) percent. The interest rate for Plus Loans is adjusted each year on July 1. Payment of principal and interest begins within 60 days after the last issuance of loan money to the parents. In addition, interest begins to accrue (be charged) from the date the first loan payment is given.

#### Campus-Based Programs

The federal government has three programs in 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 2.**

#### Federal Supplemental Educational Opportunity Grants (FSEOG)

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

#### Federal Work-Study

The Federal Work-Study Program provides jobs for students with financial need. Students may work up to 20 hours per week in a job that is either on-campus or off-campus. The program encourages community service work and work related to students' courses of study.

#### Federal Perkins Loans

A Federal Perkins Loan is a low-interest (5 percent) loan. The College decides the amount of the loan based on exceptional (extreme) financial need. These loans must be repaid. Students

have to start repaying the loan six (6) months after they are no longer enrolled in school. The starting date to repay the loan can be delayed when in certain circumstances such as: performing community service, unemployment, or economic hardship.

### Leveraging Educational Assistance Partnership (LEAP)

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

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

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

### Short-Term Loans

This program is intended to help students pay for tuition and books due to emergencies or funding problems. Students must pay back the loans within 30 to 60 days or by the end of the enrollment period, whichever comes first.

### Scholarships

A number of scholarships have been set up for students by generous private donors. The awards may be based on merit only, or a combination of financial need and merit, and on program of study. The Free Application for Federal Student Aid (FAFSA) is the form used to apply for the following scholarships. Recipients are chosen from the pool of eligible financial aid applicants.

- William A. Barnes Memorial Scholarship  
Eligibility criteria: Enrollment in Office Education, Automotive, Computer Science, Nursing, Construction, Construction Drafting, Pharmacy Technology, Radiologic Technology, or Respiratory Therapist Program  
Value: Amount and number of awards vary
- Andrew P. Martin Scholarship  
Eligibility criteria: Tucson-area high school graduate, enrollment in Air Conditioning, Automotive, Construction, Construction Drafting, Drafting Technician, Graphic Technician, Machine Tool Technician, or Welding Program  
Value: Amount and number of awards vary
- Houston Health Scholarship  
Eligibility criteria: Enrollment in Dental Assisting, Dental Hygiene, Nursing, Pharmacy Technology, or Radiologic Technology  
Value: Amount and number of awards vary
- Andrew J. Pizzini Memorial Fund  
Eligibility criteria: Promising students  
Value: Amount and number of awards vary
- Jeffrey H. Ross Memorial Scholarship  
Eligibility criteria: Promising students  
Value: Amount and number of awards vary

### Foundation Awards

The PCC Foundation receives funds from various donors. Recipients are selected from a pool of eligible applicants who have completed the Free Application for Federal Student Aid (FAFSA) and the PCC Foundation Scholarship Application available at any campus financial aid office.

- Intel Scholarship  
Eligibility criteria: Students enrolled in Semiconductor Manufacturing Technology  
Applications available in the West Campus Technology Department annually  
Value: To cover tuition and books; number of awards varies
- Campbell Endowment  
Eligibility criteria: Awarded to Tohono O'odham students  
Contact Phil Evans at 206-7260  
Value: To cover tuition and books; number of awards varies
- Wynelle Knight Memorial Scholarship  
Eligibility criteria: For disabled students  
Contact any campus Disabled Student Resource Coordinator  
Value: \$250 award; number of awards varies
- Witt Memorial Scholarship  
Eligibility criteria: Continuing enrollment in the Construction Program  
Contact your construction-related faculty member for more information  
Value: \$500 award; number of awards varies
- The Wolslager Foundation Scholarship  
Eligibility criteria: Varies  
Value: Tuition and books

## Department of Veterans Affairs (DVA) Educational Assistance

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

### Enrollment Certification and Limitations

Eligible persons (continuing veterans) will be certified each semester upon registration for courses that fall within their DVA approved program. Registration for eight credits or less will be electronically transmitted on the first day of the semester to allow for course changes. Please allow 30 days for electronic DVA processing. Eligible persons attending in their first semester will be certified upon course registration and all documents are mailed to the DVA. This initial DVA processing may take up to 60 days to complete.

### Benefits

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

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

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



Veterans at the half-time status or higher will receive a monthly benefit check. The rate of that check will vary by student status and "chapter" of eligibility. Up-to-date pay charts are maintained in the campus veterans offices.

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

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

### Degree Plans

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

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

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

### Academic Standards

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

All veterans should maintain a 2.0 grade point average (GPA) for continuous certification. Veterans not making satisfactory progress or who do not maintain academic status (see "Academic Standards of Progress" in the Admissions, Registration, Records, and Graduation section) will not be certified (benefits will be suspended) until the cause for the academic disqualification has been corrected and the program of study being pursued is suited to the person's aptitudes, interests, and abilities.

### Transfer of Previously Earned Credit

DVA requires that all students receiving educational benefits have their "prior military and/or college experience" evaluated for credit toward the objective at Pima Community College. Students must have all official transcripts and a DD Form 214 (Military) sent to PCC for evaluation. Upon receipt, the College will evaluate the document(s) to determine what credit can be accepted at Pima. This information must then be forwarded to the DVA prior to the sec-

ond semester of attendance. Failure to have this process completed during the first semester of attendance could result in overpayment and/or delay of benefits.

### Additional Benefits

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

## Pima Community College Foundation

Although state and local taxes have traditionally provided the basic needs for community colleges, private support is often necessary for true academic excellence.

Citizens of the community established the PCC Foundation in 1977 as an incorporated, not-for-profit organization to assist Pima Community College in its efforts to expand educational opportunities and services in the community. In addition, the PCC Foundation provides a means for citizens to participate actively in the future growth and development of their community college.

A major goal of the PCC Foundation is to raise funds to support the College through equipment and supplies, student scholarships, faculty creative teaching grants, and special needs of the College as determined by the Foundation Board of Directors.

The Pima Community College Foundation also plays an important role in promoting the College so that individuals, business, and industry will recognize its achievements. Each year students and faculty address various groups about the programs of the College.

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 206-4646.

### Foundation Officers, 2003

Paul Lindsey, President  
Gloria Alvillar, Vice President  
Mark C. Irvin, Secretary  
Marc Fleischman, Treasurer  
Cheryl House, CFRE, Executive Director  
Alex Hobson, Legal Counsel

### Foundation Board of Directors

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Sid Morse	

# Student Services and Student Life

## Student Services

### Admissions/Registration

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

### Advising/Counseling

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

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

Each semester counselors teach a variety of Student Success (STU) courses, giving students the opportunity to focus on college and life skills. See the current *Schedule of Classes* for course times and locations.

### Assessments

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

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

### Bookstores

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

### Cafeterias

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

### Department of Public Safety (Campus Police)

The PCC Department of Public Safety provides law enforcement, security and public service throughout the College District 24-hours a day, 7-days a week. The DPS mission is to provide a safe and secure environment for its students, staff, faculty and visitors. Each main campus has a police office that maintains a lost and found and basic First Aid services. Escorts to and from a vehicle are available upon request.

DPS provides an annual security report that includes statistics for the previous three years concerning reported crimes that occurred on campus; in certain off-campus buildings owned or controlled by the Pima County Community College District; and on public 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) 206-4500. The report can also be found online at <http://www.pima.edu/dps>. Updates and important safety and security issues are published in the student newspaper *Aztec Press*, the weekly online employee newsletter *@PimaNews*, and through the College's Internet home page, <http://www.pima.edu>.

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

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

### Career Services

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

Some campuses also have career centers. The career centers offer sources of information to help students discover their personal interests and strengths and explore career choices, including the skills required, salary ranges, and future outlook for jobs. The centers also

provide free assistance with resume writing, interview techniques and job search strategies.

### Cashier

Students can pay their tuition and fees at any campus cashier's office. Accepted forms of payments include cash, check, money order, and credit cards. Financial aid recipients need to confirm payment with the campus financial aid office. Tuition loans are available for any Arizona resident and for all qualified veterans. Stop by any campus cashier's office for more details.

### Childcare

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

### Disabled Student Resources

It is the policy of the Pima County Community College District to comply with the Americans with Disabilities Act (ADA) of 1990 and section 504 of the rehabilitation act of 1973 as amended, as well as other applicable federal and state laws and regulations that prohibit discrimination on the basis of disability. No qualified person will, solely by reason 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 proactive efforts to ensure that qualified individuals with a disability are provided reasonable academic adjustments, and to promote respect for the dignity and equal treatment of individuals with disabilities.

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

Student requests for accommodation due to disability are processed only through DSR offices. DSR specialists will provide intake assistance, determine eligibility based on appropriate documentation, and monitor and adjust student accommodations with the cooperation of students. Students with disabilities may contact any DSR office listed below to begin a request for adjustment 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. PCC strongly recommends that students explore their benefits. Contact a DSR specialist at any campus for more information.

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

#### Key:

**CC** = Community Campus

**DC** = Downtown Campus

**DVC** = Desert Vista Campus

**DMAFB** = Davis-Monthan AFB

**EC** = East Campus

**NELC** = Northeast Learning Center

**NW** = Northwest Campus

**SELC** = Southeast Learning Center

**WC** = West Campus





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

#### **Community Campus**

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

#### **Desert Vista Campus**

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

#### **Downtown Campus**

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

#### **East Campus/Northeast Community Learning Center**

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

#### **Northwest Campus**

Building B, Counseling .....206-2270 (Voice/TTY)

#### **West Campus**

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

### **Financial Aid**

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

### **Insurance**

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

### **International Student Services**

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

### **Job Information**

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

### **Library Services**

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

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

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

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

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

### **Orientation**

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

## Parking and Bus Service

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

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

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

## Specialized Programs

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

## Student Identification Cards

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

## Transcripts

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

## Tutoring

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

## Veterans Services

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

# 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, to establish contacts within the PCC and Tucson community, and to be a voice within the College. Specific information on student government, student clubs and organizations, and cultural events can be obtained by consulting the offices of Student Life or the dean of Student Development on any campus.

## Clubs and Organizations

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

## Leadership and Student Government

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

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

## Performing Arts

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

## Phi Theta Kappa

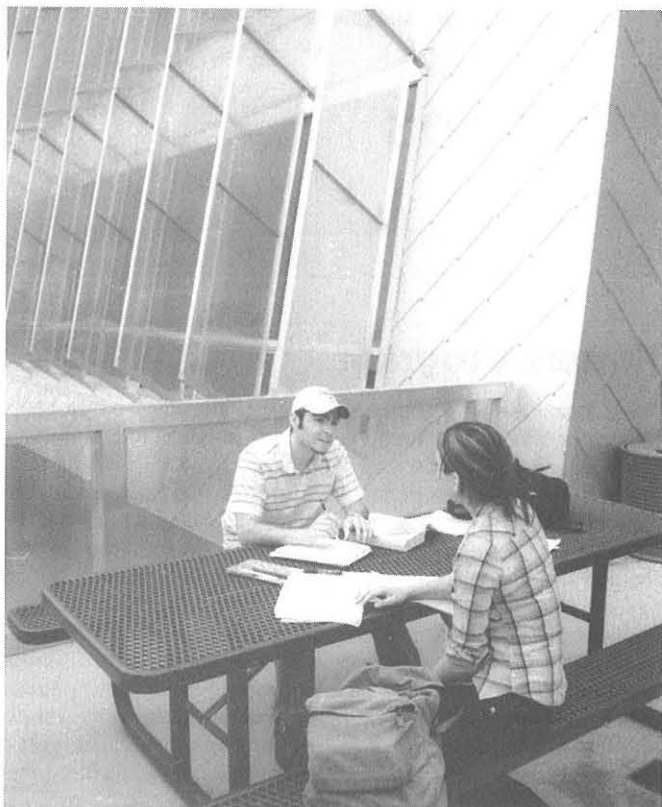
The College offers membership in Phi Theta Kappa (PTK), an international honors society. The members of this society have prestige of membership, leadership opportunities, availability of honor society scholarships, involvement in community projects, and acquaintance with other honor society members.

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

## Publications

Students interested in writing, editing, and reporting, can work on one of Pima's two student publications. *Aztec Press*, located at the West Campus, is a weekly newspaper that provides students an opportunity to learn about journalism. For more information about serving on the newspaper staff in any position, please contact either the Arts and Communications Division office or *Aztec Press*. add phone numbers?

Pima also has a literary magazine. Students interested in this form of publishing may enroll in WRT 162-Literary Magazine Workshop



held at the Downtown Campus. The workshop annually publishes *Cababi*. The *Cababi* contains literary pieces, including those from Downtown Campus students, faculty, and staff. The magazine also sponsors an annual art contest for its cover and center pages.

### Sports – Intercollegiate Athletics

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

### Sports – Recreational

Pima has recreational sports available through current and active clubs including karate, ice hockey, rodeo (men and women), tai kwon do, judo, indoor track, marathon, volleyball (men), wrestling, and Los Dorados (Sundays).

### Student Housing

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

### Student Recognition Activities

PCC provides many opportunities to celebrate the achievements and accomplishments of its many diverse students. An annual Student Recognition Event, usually held at the end of the academic year, is one of the most special gatherings. Parents and friends join the college community in recognizing the overall academic achievement, special skills, as well as leadership and community service of selected students.

## Drug Free Schools and Communities Act Information

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

### Standards of Conduct

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

1. Violating or failing to comply with published rules and regulations of conduct of the College which prohibit the unlawful possession, use, or distribution of illicit drugs and alcohol by students and employees on College property or as part of any of its activities; or
2. Being under the influence of, using, selling, possessing, or distributing any illicit drugs or alcohol on College property or as part of any of its activities. This prohibition includes, but is not necessarily limited to, marijuana, any narcotic drug, hallucinogen, stimulant, depressant, amphetamine, barbiturate, abusable glue, aerosol paint, or other chemical substances. Over-the-counter drugs are excluded from consideration unless improperly used.

### Legal Sanctions

Local, state, and federal laws prohibit the unlawful possession, use, or distribution of illicit drugs and alcohol. Conviction for violating these laws can lead to imprisonment, fine, probation, and/or assigned community service. Students convicted of a drug- and/or alcohol-related offense will 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 will assist students with appropriate referrals and information concerning drug and alcohol education, counseling, treatment, or rehabilitation or reentry programs that may be available in the community. Contact Advising and Counseling on any campus for information.



# Educational Options

## Introduction

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

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

## Traditional-Style Classes

PCC offers traditional-style classes in which students are required to attend lecture and/or lab on specified days and times. Regular classes run for 16 weeks during fall and spring semesters. Teaching and learning in traditional classes can include the use of technology, including calculators or computers.

## 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:

- Accelerated Classes
  - 5-Week, 8-Week, and 10-Week
  - Weekend Accelerated
  - Express Degree
  - Winter Intersession
  - Summer Session
- Cooperative Education Classes
- Field Experience Classes
- Independent Learning Classes
- Interactive TV Classes
- Web/Web-Enhanced
- Open Entry/Open Exit Classes
- Regular Weekend Classes
- Self-Paced Classes
- Telecourses

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

## Honors Program

The Honors Program fosters a nurturing community where students can expand their intellectual capabilities, develop their creativity, practice leadership skills, and open new doors into their fulfillment and success. Students benefit from an enhanced curriculum and are encouraged to develop the practices of scholarly inquiry, critical reflection, and collaboration. The primary goals of the Honors Program are to develop leadership and community service opportunities, flexibility in selecting Honors courses, facilitation of entry into Honors Programs at four-year colleges, recognition of intellectual ability, vision, and commitment, as well as future possibilities for study and employment. The Honors Program community features outstanding faculty, one-on-one guidance in seeking scholarships and awards, small class sizes, a creative environment, and a strong support network among students, faculty, and staff.

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

### Admission Criteria

New students qualify by meeting one of these criteria:

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

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

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

### Admission Process

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

# Earning a Degree or Certificate

## Degree, Certificate, and Graduation Requirements

Pima Community College offers certificates and degrees in a variety of areas. Each certificate and degree has specified program requirements for graduation. See certificate and degree displays for specific program requirements. The certificates and degrees are displayed alphabetically beginning on page 64 with Accounting.

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

## Guaranteed Workforce/ Occupational Curriculum

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

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

## Earning a Degree or Certificate

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

### Program Prerequisites

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

### Program Requirements

#### General Education Courses

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

#### Core/Major Courses

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

#### Support/Elective Courses

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

## Graduation Requirements

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

1. Apply for graduation within one year of completion of degree requirements. Students failing to do so must apply for an exception through the Office of the Registrar at the District Office and must complete a graduation application by the dates specified in this Catalog's academic calendar. Failure to complete the application by that date will result in a delay in processing until the following semester.
2. Complete the General Education requirements appropriate to the certificate or degree.
3. Complete the program core, support, and prerequisite requirements for the appropriate certificate or degree.
  - a. Complete a minimum of 60 credit hours of course work at the 100 level or higher for an Associates Degree. At least 15 semester credit hours of the total required to qualify for an Associates Degree must be earned at PCC.
  - b. Complete the college credit hours as defined in the certificate display within this catalog to earn a certificate. For certificates of 6 or more credit hours, at least 6 hours of the total required to qualify for a certificate must be earned at PCC. For certificates of less than 6 credits, all credits must be earned from PCC.
4. Complete the reading requirement, if specified for the appropriate certificate or degree.
5. Have a minimum 2.0 grade point average (GPA) on a 4.0 grade point scale.
6. Complete courses given the following rules regarding grades:
  - a. A "C" grade is required for general education and core courses.

- b. "D" or "F" grades do not fulfill graduation requirements for any transfer degree (Associate of Arts, Associate of Science and the Associate of Business Administration) or AGECE.
  - c. A grade of "P" cannot be used for Arizona General Education Curriculum (AGECE) or any transfer degree (Associate of Arts, Associate of Science and the Associate of Business Administration).
  - d. A "D" grade can fulfill the requirement for support courses only in certificates, the Associate of Applied Arts, Associate of Applied Sciences, and Associate of General Studies.
7. Complete the Academic Profile as part of the official graduation process if earning an associate degree.

## Graduation with Honors

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

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

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

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

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

The rules for maintaining continuous enrollment are:

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

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

## Time Limit for Coursework

In areas of study in which the subject matter changes rapidly, material in courses taken long before graduation may become obsolete or irrelevant. Coursework that is more than eight years old is applicable to completion of certificate and degree requirements at the discretion of the student's major department. Departments may accept such coursework, reject it, or request that the student revalidate its substance. The eight-year limit on coursework applies except when program accreditation agencies limit the life of coursework to less than eight years. Departments may also require students to satisfy current major requirements

rather than major requirements in earlier catalogs, when completing earlier requirements is no longer possible or educationally sound. **There is no time limit for General Education Courses.**

# General Education Information

## The Value of General Education

General Education helps students to gain an understanding and appreciation of themselves; their history and culture; the history and culture of humanity; the principles and impact of mathematics, science and technology; and the principles of effective communication. Through an understanding and appreciation of these elements, the students should come to a realization of the interrelationships.

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

## General Education Requirements by Certificate or Degree

The following list shows the minimum General Education credits needed for each type of degree program or certificate offered at Pima Community College. When considering which type of program is best for you, please note that if you intend to transfer to a university to complete a bachelor's degree, the Associate of Arts (AA), Associate of Business Administration (ABUS), and the Associate of Science (AS) are the degrees designed for that purpose. The Associate of General Studies, Associate of Applied Arts (AAA), and the Associate of Applied Science (AAS) degrees require different General Education courses.

### Transfer Degrees

	General Education Credits Needed
Associate of Arts (AA) . . . . .	35
Associate of Business Administration (ABUS) . . . . .	35
Associate of Science (AS) . . . . .	35

### Not Intended for Transfer

	General Education Credits Needed
<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) . . . . .	18-21
Associate of Applied Science (AAS) . . . . .	18-21
<b>Associate of General Studies</b> . . . . .	18-21

## Reading Requirement – Prerequisite for General Education

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

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

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



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

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

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

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

## General Education Requirements for Certificates for Direct Employment

### (30 Credit Hours or More)

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

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

### Communication Requirement (3 credits)

Choose 3 credit hours from the following list:

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

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

Complete 3 credit hours from the categories listed below:

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

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

The mathematics competency requirement can be met by:

1. Assessment – A score of 32 or above on the COMPASS Algebra test or ASSET Elementary Algebra test. See an advisor or counselor for verification of your assessment score. If the competency is **not** met by assessment, a minimum of 1 credit hour of mathematics course work at the 100 level or higher is required. (See number 2 below.)

OR

2. Course work – 1, 2 or 3 credits from the Mathematics Category shown below.

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

### Mathematics Category

- GTM 105
- MAT 107
- MAT 108
- MAT 114
- MAT 122 or higher\*
- TEC 113

### Science Category

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

- MAC 275
- PHY 101

### Critical Thinking Category

- PHI 120
- REA 112
- STU 103
- TEC 101

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

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

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

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

### Communication Requirement (6 credits)

Choose one of the following pairs:

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

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

Complete 6 credit hours from the categories listed below.

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

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

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

The mathematics competency requirement can be met by:

1. Assessment-- A score of 32 or above on the COMPASS Algebra test or ASSET Elementary Algebra test. See an advisor or counselor for verification of your assessment score. If the competency is **not** met by assessment, a minimum of 1 credit hour of mathematics course work at the 100 level or higher is required. ( See number 2 below.)

OR

2. Course work -- 1, 2 or 3 credits from the Mathematics Category shown below.

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

\*Suggested for students who may transfer

**Mathematics Category**

GTM 105  
 MAT 107  
 MAT 108  
 MAT 114  
 MAT 122 or higher\*  
 TEC 113

**Science Category**

Any course from the Arizona General Education Curriculum (AGEC) Biological/Physical Science List\*

MAC 275  
 PHY 101

**Critical Thinking Category**

PHI 120  
 REA 112  
 STU 103  
 TEC 101

**Humanities and Social Science Requirement (6 credits)**

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

One of the courses must meet either Cultural Diversity or Global Awareness criteria ( C or G designation from the Arizona General Education Curriculum (AGEC) lists or a course from the Leadership and Ethics Category). The AGEC lists are found in the General Education Requirements for Transfer Programs following this section. 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  
 Any course from the AGEC Other Requirements Options:  
 (c) Second Language list  
 LIT 174

Any conversational language course numbered at the 100 level or higher. The following courses meet this requirement:  
 SPA 106, 107, 121, 122, 203, 204; 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 requirement  
 BIO 250; BUS 148; STU 230

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

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

AJS 165 ; CAD 101; CSA 100, 101; FSC 189

## General Education Requirements for Transfer Programs

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

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

\*Suggested for students who may transfer

**Arizona General Education Curriculum (AGEC)**

The AGEC is a block of 35 or more credits that, when completed, can be transferred to another Arizona public community college or university without losing any credits. The AGEC meets all lower-division General Education requirements for bachelor's degrees at Arizona's public universities (Arizona State University, Northern Arizona University, and the University of Arizona). The AGEC may also meet other universities' General Education program requirements. See an advisor or counselor for more information.

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

**AGEC-A:**

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

**AGEC-B:**

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

**AGEC-S:**

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

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

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

**AGEC Categorical Requirements**

Each AGEC (AGEC-A, AGEC-B, and AGEC-S) has the same categories and number of credits, but differ in the mathematics and science courses required. Courses may not be used to complete more than one category.

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

Categorical Requirements	Credit Hours
English Composition . . . . .	6
Humanities and Fine Arts . . . . .	6-9
(At least one course from the Art list and one course from the Humanities/Historical Perspectives list)	
Biological and Physical Sciences . . . . .	8
AGEC-A: Any course from the list	
AGEC-B: Any course from the list	
AGEC-S: CHM 151/152 or PHY 210/216 are required	
Mathematics . . . . .	3
AGEC-A: MAT 142 or above is required	
AGEC-B: MAT 212 or above is required	
AGEC-S: MAT 220 or above is required	
Social and Behavioral Sciences . . . . .	6-9
Courses must be completed from at least two prefixes in this category.	
Other requirement options: . . . . .	0-6
a. Oral Communication	
b. Computer Science, Critical Thinking, Logic, Mathematics or Science	
c. Second Language	
d. International and Multi-cultural Studies	
Total General Education Credits Required	35

### AGEC Special Requirements

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

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

AGEC special requirements can be completed in one, two or three courses. Look for the 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, ANT 112 is the category requirement of Humanities and Fine Arts and 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	Writing I	3	
WRT 102	Writing II	3	
WRT 107	Writing I for Non-Native Speakers of English	3	
WRT 108	Writing II for Non-Native Speakers of English	3	
ZTR WR	AGEC Writing Equivalent	3	
ZTR WRI	AGEC Writing Equivalent	3	I

ZTR WRC	AGEC Writing Equivalent	3	C
ZTR WRG	AGEC Writing Equivalent	3	G
ZTR WRIC	AGEC Writing Equivalent	3	I,C
ZTR WRIG	AGEC Writing Equivalent	3	I,G
ZTR WRCG	AGEC Writing Equivalent	3	C,G
ZTR WRICG	AGEC Writing Equivalent	3	I,C,G

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

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

### Art List

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ART 100	Basic Design	3	
ART 105	Art Appreciation	3	G
ART 110	Drawing I	3	
ART 115	Color and Composition	3	
ART 120	Sculptural Design	3	
ART 201	Survey of Painting, Materials, and Techniques	3	
DAR 250	Computer 2D Animation: Adobe After Effects	4	
DAR 251	Computer 3D Animation	4	
DAR 252	Computer Multimedia Design I	4	
MUS 102	Music Fundamentals	3	
MUS 108	Pima Jazz Band I	2	
MUS 109	Pima Jazz Band II	2	
MUS 111	Exploring Music Through Piano	3	
MUS 112	Community Jazz Band I	2	
MUS 113	Community Jazz Band II	2	
MUS 116	Pima CC Orchestra I	2	
MUS 117	Pima CC Orchestra II	2	
MUS 120	Concert Band I	3	
MUS 121	Concert Band II	3	
MUS 125 <sup>†</sup>	Theory and Structure of Diatonic Music	3	
MUS 127 <sup>†</sup>	Aural Perception: Diatonic and Rhythmic Skills	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

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



Humanities List:

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ANT 112	Exploring Non-Western Cultures	3	I,C,G
ANT 135	Pre-Columbian Art	3	
ANT 148	History of Indians of North America	3	C,G
ANT 205	Intro to Southwestern Prehistory	3	C
ANT 206	Contemporary Native Americans of the Southwest	3	C
ARC 205	Intro to Southwestern Prehistory	3	C
ART 130	Art and Culture: Prehistory through Gothic	3	I,G
ART 131	Art and Culture: Gothic through Modern Periods	3	I,G
ART 134	Arts of Diverse Cultures	3	G
ART 135	Pre-Columbian Art	3	
DES 213	History of Interior Architecture and Furniture from 1900-Present	3	G
HIS 101	Intro to Western Civilization I	3	I,G
HIS 102	Intro to Western Civilization II	3	I,G
HIS 113	Chinese Civilization	3	G
HIS 114	Japanese Civilization	3	G
HIS 122	Tohono O'odham History/Culture	3	I,C,G
HIS 124	History/Culture of the Yaqui People	3	C,G
HIS 135	Pre-Columbian Art	3	
HIS 141	History of the United States I	3	C,G
HIS 142	History of the United States II	3	C,G
HIS 148	History of Indians of North America	3	C,G
HIS 160	History and People of Latin America I	3	I,C,G
HIS 161	History and People of Latin America II	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 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
LIT 231	Introduction to Shakespeare	3	I
LIT 240	American Literature of Opposition	3	I,C
LIT 260	Major British Writers	3	I
LIT 261	Modern Literature	3	I,C,G
LIT 265	Major American Authors	3	I
LIT 266	World Literature: Dramatic	3	I,G
LIT 267	World Literature: Narrative	3	I,G
LIT 274	Native American Literature	3	I,C
LIT 289	Literature and Film	3	I
MUS 151	Exploring Music	3	
MUS 160	Popular Music in America	3	
MUS 201	History and Literature of Music I	3	
MUS 202	History and Literature of Music II	3	
PHI 101	Introduction to Philosophy	3	
PHI 122	God, Mind, and Matter	3	
PHI 123	Philosophical Foundations of Science	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	

Course Number	Course Title	Credit Hours	AGEC Special Requirement
PHI 140	Philosophy of Religion	3	
REL 130	Asian Religions	3	G
REL 140	Philosophy of Religion	3	
REL 200	Religion in Popular Culture	3	C
REL 220	Old Testament	3	
REL 221	New Testament	3	
REL 234	Islam	3	G
REL 273	Judaism	3	C
THE 140	History of Theater to the 18th Century	3	
THE 141	History of Theater Since the 18th Century	3	
UAT 101(**)	Traditions and Culture I	3	
UAT 102(**)	Traditions and Culture II	3	
UAT 103(**)	Traditions and Culture III	3	
UAT 104(**)	Traditions and Culture IV	3	
ZTR HU	AGEC Humanities Equivalent	3	
ZTR HUI	AGEC Humanities Equivalent	3	I
ZTR HUC	AGEC Humanities Equivalent	3	C
ZTR HUG	AGEC Humanities Equivalent	3	G
ZTR HUIC	AGEC Humanities Equivalent	3	I,C
ZTR HUIG	AGEC Humanities Equivalent	3	I,G
ZTR HUCG	AGEC Humanities Equivalent	3	C,G
ZTR HUICG	AGEC Humanities Equivalent	3	I,C,G

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

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

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

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ANT 104/ 105 <sup>+</sup> or ANT 105/ 105LB	Humanity and the Environment	4	I
AST 101/ 101LB or AST 101IN	Solar System	4	
AST 102/ 102LB or AST 102IN	Stars, Galaxies, Universe	4	
AST 105/ 105LB or AST 105IN	Life in the Universe	4	
BIO 100IN	Biology Concepts	4	
BIO 104IN	Animal Sexual Behavior	4	
BIO 105IN	Environmental Biology	4	
BIO 108IN	Plants, People and Culture	4	G
BIO 109IN	Natural History of the Southwest	4	
BIO 115IN	Wildlife of North America	4	
BIO 121IN	Current Topics in Human Biology	4	
BIO 127IN	Human Nutrition and Biology	4	I
BIO 156IN	Human Biology for Allied Health	4	
BIO 160IN	Introduction to Human Anatomy and Physiology	4	
BIO 181IN	General Biology (Majors) I	4	
BIO 182IN	General Biology (Majors) II	4	
BIO 183IN	Marine Biology	4	

Biological and Physical Sciences (continued):

Course Number	Course Title	Credit Hours	AGEC Special Requirement
BIO 184IN	Plant Biology	4	
BIO 187IN	Introduction to Biological Research	4	
BIO 201IN	Human Anatomy/Physiology I	4	
BIO 202IN	Human Anatomy/Physiology II	4	
BIO 205IN	Microbiology	4	
CHM 121/ 121LB or CHM 121IN	Chemistry and Society I	4	
CHM 122/ 122LB or CHM 122IN	Chemistry and Society II	4	
CHM 130/ 130LB or CHM 130IN	Fundamental Chemistry	5	
CHM 140/ 140LB or CHM 140IN	Fundamental Organic and Biochemistry	5	
CHM 151/ 151LB or CHM 151IN	General Chemistry I	5	
CHM 152/ 152LB or CHM 152IN	General Chemistry II	5	
CHM 235/ 235LB or CHM 235IN	General Organic Chemistry I	5	
CHM 236/ 236LB or CHM 236IN	General Organic Chemistry II	5	
ENV 104/ 105* or ENV 105/ 105LB	Humanity and the Environment	4	I
FSN 127	Human Nutrition and Biology	4	I
GEO 101	Physical Geography: Weather and Climate	4	
GEO 102	Physical Geography: Land Forms and Oceans	4	
GLG 101IN	Introductory Geology I: Physical Geology	4	
GLG 102IN	Introductory Geology II: Historic Geology	4	
PHY 115/ 115LB	Physical Science	4	
PHY 121/ 121LB or PHY 121IN	Introductory Physics I	5	
PHY 122/ 122LB or PHY 122IN	Introductory Physics II	5	
PHY 210/ 210LB or PHY 210IN	Introductory Mechanics	5	
PHY 216/ 216LB or PHY 216IN	Introductory Electricity and Magnetism	5	
PHY 221/ 221LB	Introduction to Waves and Heat	4	

Course Number	Course Title	Credit Hours	AGEC Special Requirement
ZTR BP	AGEC Science Equivalent	3	
ZTR BPI	AGEC Science Equivalent	3	I
ZTR BPC	AGEC Science Equivalent	3	C
ZTR BPG	AGEC Science Equivalent	3	G
ZTR BPIC	AGEC Science Equivalent	3	I,C
ZTR BPIG	AGEC Science Equivalent	3	I,G
ZTR BPCG	AGEC Science Equivalent	3	C,G
ZTR BPICG	AGEC Science Equivalent	3	I,C,G

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

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

Complete three credits. The AGECA requires MAT 142 or above. The AGECS requires MAT 212 or above. The AGECS 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 151	College Algebra	4	
MAT 167	Introductory Statistics	3	
MAT 172	Finite Mathematics	3	
MAT 173	Mathematics for Business I	3	
MAT 174	Mathematics for Business II	3	
MAT 182	Trigonometry	3	
MAT 187	Precalculus	5	
MAT 212	Topics in Calculus	3	
MAT 220	Calculus I	5	
MAT 227	Discrete Mathematics in Computer Science	4	
MAT 231	Calculus II	4	
MAT 241	Calculus III	4	
MAT 252	Introduction to Linear Algebra	3	
MAT 262	Differential Equations	3	
ZTR MA	AGEC Math Equivalent	3	
ZTR MAI	AGEC Math Equivalent	3	I
ZTR MAC	AGEC Math Equivalent	3	C
ZTR MAG	AGEC Math Equivalent	3	G
ZTR MAIC	AGEC Math Equivalent	3	I,C
ZTR MAIG	AGEC Math Equivalent	3	I,G
ZTR MACG	AGEC Math Equivalent	3	C,G
ZTR MAICG	AGEC Math Equivalent	3	I,C,G

**AGEC Categorical Requirement:****Social and Behavioral Sciences (6-9 credits)**

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

Course Number	Course Title	Credit Hours	AGEC Special Requirement
AI 101	Intro. to American Indian Studies I	3	
ANT 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology/Linguistics	3	G
ANT 110	Buried Cities and Lost Tribes	3	

Social and Behavioral Sciences List (continued)

Course Number	Course Title	Credit Hours	AGEC Special Requirement	Number	Title	Hours	Requirement
ANT 112	Exploring Non-Western Cultures	3	I,C,G	POS 140	Intro to Comparative Politics	3	C,G
ANT 127	History and Culture of the Mexican-American in the SW	3	I,C,G	POS 160	Intro to Political Ideas	3	
ANT 150	African-American History/People	3	C	POS 220	National and State Constitutions	3	
ANT 202	Sex, Gender, and Culture	3	C	PSY 100A	Psychology I	3	
ANT 205	Intro to Southwestern Prehistory	3	C	PSY 100B	Psychology II	3	
ANT 206	Contemporary Native Americans of the Southwest	3	C	PSY 101	Introduction to Psychology	4	
ARC 101	Human Origins and Prehistory	3		PSY 132	Psychology and Culture	3	G
ARC 110	Buried Cities and Lost Tribes	3		PSY 215	Human Sexuality	3	C,G
ARC 205	Intro to Southwestern Prehistory	3	C	PSY 216	Psychology of Gender	3	C
ECN 200	Basic Economic Principles	3		PSY 218	Health Psychology	3	
ECN 201	Microeconomic Principles	3		PSY 230	Psychological Measurements and Statistics	3	
ECN 202	Macroeconomic Principles	3		PSY 250	Introduction to Social Psychology	3	
GEO 103	Cultural Geography	3	G	PSY 265	Normal Personality I	3	
GEO 104	World Regional Geography	3	G	REL 140	Philosophy of Religion	3	
GEO 250	Intro to Medical Geography	3	G	REL 200	Religion in Popular Culture	3	C
HIS 101	Intro to Western Civilization I	3	I,G	REL 220	Old Testament	3	
HIS 102	Intro to Western Civilization II	3	I,G	REL 221	New Testament	3	
HIS 105	Intro to Chicano Studies I	3	I,C,G	REL 234	Islam	3	G
HIS 113	Chinese Civilization	3	G	SOC 101	Introduction to Sociology	3	C
HIS 114	Japanese Civilization	3	G	SOC 103	Explorations in Prejudice	3	C
HIS 122	Tohono O'odham History/Culture	3	I,C,G	SOC 110	Intro to Cities and Global Society	3	G
HIS 124	History/Culture of the Yaqui People	3	C,G	SOC 120	Current Social Problems	3	C,G
HIS 127	History /Culture of the Mexican-American in the Southwest	3	I,C,G	SOC 201	Minority Relations and Urban Society	3	C
HIS 141	History of the United States I	3	C,G	SOC 203	Sociology of Utopia	3	I,G
HIS 142	History of the United States II	3	C,G	SOC 204	Gender Identities, Interaction, and Relations	3	C
HIS 147	History of Arizona	3	C	SOC 215	Human Sexuality	3	C,G
HIS 148	History of Indians of North America	3	C,G	SOC 273	Sociology of Sport	3	C
HIS 150	African-American History and People	3	C	SSE 110	Introduction to Social Welfare	3	
HIS 160	History/People of Latin America I	3	I,C,G	UAI 101(***)	Individuals and Society I	3	
HIS 161	History/People of Latin America II	3	I,C,G	UAI 102(***)	Individuals and Society II	3	
HIS 170	History/People of Africa	3	G	UAI 103(***)	Individuals and Society III	3	
HIS 180	Women in Western History	3	C	UAI 104(***)	Individuals and Society IV	3	
HIS 253	History of Women in the United States: Early America	3	C	ZTR SB	AGEC Social and Behavioral Sciences Equivalent	3	
HIS 254	History of Women in the United States: The 20th Century	3	C	ZTR SBI	AGEC Social and Behavioral Sciences Equivalent	3	I
HIS 274	The Holocaust	3	G	ZTR SBC	AGEC Social and Behavioral Sciences Equivalent	3	C
HIS 284	Modern Israel and Arab/Israeli Relations	3	G	ZTR SBG	AGEC Social and Behavioral Sciences Equivalent	3	G
HUM 260	Intercultural Perspectives	3	I,C	ZTR SBIC	AGEC Social and Behavioral Sciences Equivalent	3	I,C
JRN 102	Survey of Media Communications	3	G	ZTR SBIG	AGEC Social and Behavioral Sciences Equivalent	3	I,G
PHI 101	Introduction to Philosophy	3		ZTR SBCG	AGEC Social and Behavioral Sciences Equivalent	3	C,G
PHI 130	Introductory Studies in Ethics and Social Philosophy	3		ZTR SBICG	AGEC Social and Behavioral Sciences Equivalent	3	I,C,G
PHI 140	Philosophy of Religion	3		*** UAI 101, 102, 103, and 104 are PCC course equivalencies of UA INDV 101, 102, 103, and 104. Note: INDV courses (up to two courses for six credits) may fulfill Social and Behavioral Sciences requirements. It is assumed the two INDV courses are of two different prefixes. INDV courses do not fulfill I, C, or G requirements.			
POS 100	Introduction to Politics	3					
POS 110	American National Government and Politics	3	C				
POS 120	Intro to International Relations	3	G				
POS 130	American State and Local Governments and Politics	3	C				



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

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

**a) Oral Communication**

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

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

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

Course Number	Course Title	Credit Hours	AGEC Special Requirement
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

**c) Second Language:**

APC 101	Apache Language I	4	
APC 102	Apache Language II	4	
CHI 101	Elementary Chinese (Mandarin) I	5	
CHI 102	Elementary Chinese (Mandarin) II	5	
CHI 201	Intermediate Chinese (Mandarin) I	5	G
CHI 202	Intermediate Chinese (Mandarin) II	5	G
FRE 101	Elementary French I	4	
FRE 102	Elementary French II	4	
FRE 201	Intermediate French I	4	G
FRE 202	Intermediate French II	4	G
GER 101	Elementary German I	4	
GER 102	Elementary German II	4	
GER 201	Intermediate German I	4	G
GER 202	Intermediate German II	4	G
GRK 101	Elementary Modern Greek I	4	
GRK 102	Elementary Modern Greek II	4	
GRK 201	Intermediate Modern Greek I	4	G
GRK 202	Intermediate Modern Greek II	4	G
HEB 101	Elementary Modern Hebrew I	4	
HEB 102	Elementary Modern Hebrew II	4	
HEB 201	Intermediate Modern Hebrew I	4	G
HEB 202	Intermediate Modern Hebrew II	4	G
ITA 101	Elementary Italian I	4	
ITA 102	Elementary Italian II	4	
ITA 201	Intermediate Italian I	4	G
ITA 202	Intermediate Italian II	4	G
JPN 101	Elementary Japanese	5	
JPN 102	Elementary Japanese II	5	
JPN 201	Intermediate Japanese I	5	G
JPN 202	Intermediate Japanese II	5	G
LAT 101	Elementary Latin I	4	
LAT 102	Elementary Latin II	4	
LAT 201	Intermediate Latin I	4	
LAT 202	Intermediate Latin II	4	
POR 101	Elementary Portuguese I	4	
POR 102	Elementary Portuguese II	4	
POR 201	Intermediate Portuguese I	4	G
POR 202	Intermediate Portuguese II	4	G
RUS 101	Elementary Russian I	4	
RUS 102	Elementary Russian II	4	
RUS 201	Intermediate Russian I	4	G
RUS 202	Intermediate Russian II	4	G
SLG 101	American Sign Language I	4	
SLG 102	American Sign Language II	4	
SLG 201	American Sign Language III	4	
SLG 202	American Sign Language IV	4	
SPA 101	Elementary Spanish I	4	
SPA 102	Elementary Spanish II	4	
SPA 103	Beginning Spanish for Spanish Speakers	4	G

c) Second Language (continued):

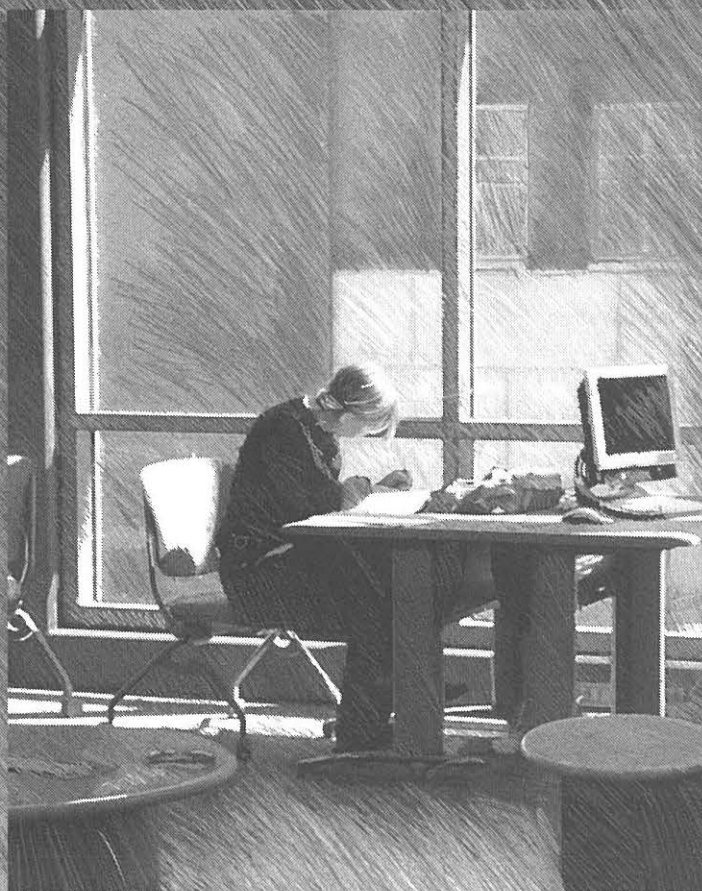
Course Number	Course Title	Credit Hours	AGEC Special Requirement
SPA 201	Intermediate Spanish I	4	G
SPA 202	Intermediate Spanish II	4	G
SPA 203	Writing and Oral Skills for Spanish Speakers	4	G
SPA 253	Intermediate Spanish for Spanish Speakers	4	G
THO 101	Elementary Tohono O'odham I	4	G
THO 102	Elementary Tohono O'odham II	4	G
Yaq 101	Elementary Yaqui I	4	G
Yaq 102	Elementary Yaqui II	4	G
ZTR LA	AGEC Language Equivalent	3	
ZTR LAI	AGEC Language Equivalent	3	I
ZTR LAC	AGEC Language Equivalent	3	C
ZTR LAG	AGEC Language Equivalent	3	G
ZTR LAIC	AGEC Language Equivalent	3	I,C
ZTR LAIG	AGEC Language Equivalent	3	I,G
ZTR LACG	AGEC Language Equivalent	3	C,G
ZTR LAICG	AGEC Language Equivalent	3	I,C,G

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
ARC 205	Intro to Southwestern Prehistory	3	C
ART 130	Art and Culture: Prehistory to Gothic	3	I,G
ART 131	Art and Culture: Late Gothic to Modern Periods	3	I,G
ART 134	Art of Diverse Cultures	3	G
BUS 210	International Business	3	G
GEO 250	Intro to medical Geography	3	G
HIS 101	Intro to Western Civilization I	3	I,G
HIS 102	Intro to Western Civilization II	3	I,G
HIS 105	Intro to Chicano Studies I	3	I,C,G
HIS 113	Chinese Civilization	3	G
HIS 114	Japanese Civilization	3	G
HIS 115	Civilization of India	3	G
HIS 122	Tohono O'odham History/Culture	3	I,C,G
HIS 124	History/Culture of the Yaqui People	3	C,G
HIS 127	History/Culture of the Mexican-American in the Southwest	3	I,C,G
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

Course Number	Course Title	Credit Hours	AGEC Special Requirement
HIS 150	African American History/People	3	C
HIS 160	History/People of Latin America I	3	I,C,G
HIS 161	History/People of Latin America II	3	I,C,G
HIS 170	History/People of Africa	3	G
HIS 180	Women in Western History	3	C
HIS 244	Western America	3	C
HIS 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	3	G
HIS 284	Modern Israel and Arab/Israeli Relations	3	G
HUM 260	Intercultural Perspectives	3	I,C
JPN 245	Japanese Culture and Communication	3	G
LIT 240	American Literature of Opposition	3	I,C
LIT 266	World Literature: Dramatic	3	I,G
LIT 267	World Literature: Narrative	3	I,G
LIT 274	Native American Literature	3	I,C
POS 120	Intro to International Relations	3	G
POS 140	Intro to Comparative Politics	3	C,G
PSY 132	Psychology and Culture	3	G
PSY 215	Human Sexuality	3	C,G
REL 119	Western Religions	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 Worldview	3	C
SOC 101	Introduction to Sociology	3	C
SOC 103	Explorations in Prejudice	3	C
SOC 110	Intro to Cities and Global Society	3	G
SOC 120	Current Social Problems	3	C,G
SOC 201	Minority Relations and Urban Society	3	C
SOC 203	Sociology of Utopia	3	I,G
SOC 204	Gender, Identities, Interaction, and Relations	3	C
SOC 215	Human Sexuality	3	C,G
SOC 273	Sociology of Sport	3	C
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

# Educational Programs, Degrees and Certificates





## Degrees and Certificates

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

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

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

The definitions of the abbreviations in the Award column are:

### **AA Associate of Arts**

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

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

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

### **AS Associate of Science**

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

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

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

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

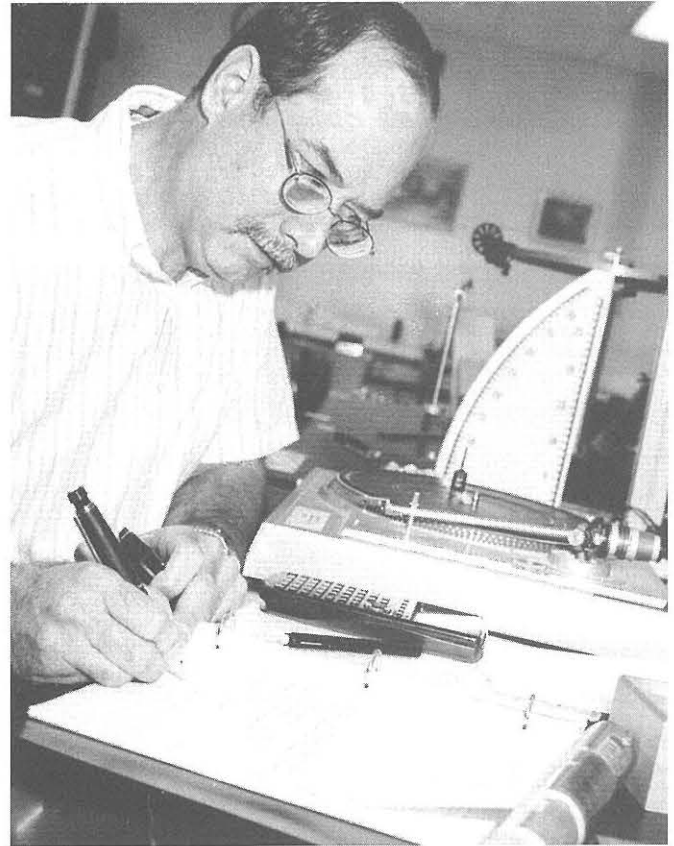
An Associate of Applied Science is a credit degree of 60-72 credits for direct employment into jobs requiring skills and competencies in the technologies, business, government and public service, and health-related professions.

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

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

### **CERT Certificate**

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



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

A Post-Degree Certificate is a credit certificate in a specific field of study of less than 60 credits for direct employment into a job. An Advanced Certificate requires completion of an AA, ABUS, AS, AGS, or a Bachelor's Degree before beginning the Advanced Certificate program. See program display for specific requirements. Requires completion of an Associate's degree or higher.

### **CTD Certificate of Completion**

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

## Credit Degrees and Certificates

There are three lists of credit certificates and degrees:

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

Campus legend:

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

## General Studies Programs

Program	Award	Program Code
General Studies	AGS	AGSGENRSTUDY

## Occupational Programs

Occupational Program	Award	Program Code	Lead Campus*
<b>Accounting</b>			
Accounting	CERT	CRTACCOUNTIN	WC
Accounting	AAS	AASACCOUNTIN	WC
<b>Administration of Justice Studies</b>			
Administration of Justice Studies	AAS	AASADMINJUST	EC
<b>Administrative And Office Support Careers—See Office And Administrative Professions</b>			
<b>Archaeology</b>			
Field Archaeology	CERT	CRTFLDARCHEO	WC
<b>Arts, Applied</b>			
Applied Arts	AAA	AAAAPPLDARTS	WC
<b>Automotive Technology</b>			
Automotive Mechanics	CERT	CRTAUTOMECHS	DTC
Automotive Technology	AAS	AASAUTOTECHN	DTC
<b>Aviation Technology</b>			
Advanced Aviation Technology	CERT	CRTAVIATIONA	DVC
Aviation Technology	AAS	AASAVIATION	DVC
<b>Building And Construction Technologies</b>			
Basic Building and Construction Technologies	CERT	CRTBLDGCON-B	DTC
Advanced Building and Construction Technologies	CERT	CRTBLDGCON-A	DTC
Building and Construction Technologies	AAS	AASBLDGCONST	DTC
<b>Business</b>			
Basic Business	CERT	CRTBUSINES-B	EC
Advanced Business	CERT	CRTBUSINES-A	EC
Business	AAS	AASBUSINESS	EC
<b>Business and Industry Technology</b>			
Basic Business and Industry Technology	CERT	Special **	CC
Advanced Business and Industry Technology	CERT	Special **	CC
Advanced Business and Industry Technology – Retail Management	CERT	Special **	CC
Business and Industry Technology	AAS	Special **	CC
<b>Computer-Aided Drafting Technology</b>			
Basic Computer Aided Drafting	CERT	CRTCONDRFT-B	DTC
Advanced Computer Aided Drafting	CERT	CRTCONDRFT-A	DTC
Computer Aided Drafting Technology	AAS	AASELECMECHN	DTC
<b>Computer Information Systems</b>			
Computer Programmer Specialist	CERT	CRTCMPPRGSP	WC
Computer Programmer/ Analyst	AAS	AASCMPPRGANL	WC
Systems Administration/ Networking	CERT	CRTNETWRKADM	WC
Systems Administration/ Networking	AAS	AASCOMPSYSAD	WC

Occupational Program	Award	Program Code	Lead Campus*
<b>Computer Software Applications</b>			
Computer Software Applications for Office Professionals	CERT	CRTCSAPROFES	DTC
<b>Corrections</b>			
Corrections Training Academy	CERT	Special **	CC
County Corrections Training Academy	CERT	Special **	CC
Pima County Juvenile Court Center's Detention Facility Supervision and Mentoring	CERT	Special **	CC
Youth Supervision in Corrections/ Detention	CERT	Special **	CC
<b>Culinary Arts</b>			
Culinary Arts	CERT	CRTCULNRYART	DVC
Culinary Arts	AAS	AASCULNRYART	DVC
<b>Dental Assisting Education</b>			
Dental Assisting Education	CERT	Special **	WC
<b>Dental Hygiene</b>			
Dental Hygiene	AAS	Special **	WC
<b>Dental Laboratory Technology</b>			
Dental Laboratory Technology	AAS	Special **	WC
Complete Dentures Technologist	CERT	Special **	WC
Dental Ceramics Technologist	CERT	Special **	WC
Fixed Bridgework Technologist	CERT	Special **	WC
Partial Dentures Technologist	CERT	Special **	WC
<b>Digital Arts</b>			
Digital Arts	CERT	CRTCOMMGRAPH	WC
Digital Arts	AAS	AASCOMMGRAPH	WC
Digital and Film Arts	CERT	CRTDIGIFILM	WC
Digital and Film Arts	AAS	AASDIGIFILM	WC
Digital and Film Arts Animation	AAS	AASANIMATION	WC
<b>Early Childhood Education And Child Development Associate</b>			
Teacher Aide/Assistant	CERT	CRTTEACHAIDE	DVC
Teacher/Director	AAS	AASTEACHDRCT	DVC
Basic School-Aged Child Care Assistant	CERT	CRTCHILDCR-B	DVC
Advanced School-Aged Child Care	CERT	CRTCHILDCR-A	DVC
School-Aged Child Care	AAS	AASCHILDCARE	DVC
Child Development Associate	CERT	CRTCHILDDDEV	DVC
Child Development Associate	AAS	AASCHILDDDEV	DVC
<b>Education</b>			
Teacher Certification – Elementary or Secondary	CERA	CRDTEACHCERT	CC
Education Endorsement – ESL	CERA	CRDENDORSEA	CC
Education Endorsement – Middle School	CERA	CRDENDORSEB	CC
Education Endorsement – K-12 Reading	CERA	CRDENDORSEB	CC

\* 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 Program	Award	Program Code	Lead Campus*
<b>Educational Technology</b>			
Introductory Educational Technology	CERT	CRTINTEDUTEC	CC
Advanced Educational Technology	CERT	CRTAEDUCTECH	CC
<b>Emergency Medical Technology</b>			
Basic Emergency Medical Technology	CERT	CRTEMEDTEC-B	CC
Emergency Medical Technology – Intermediate	CERT	Special **	CC
Emergency Medical Technology – Paramedic	CERT	Special **	CC
Emergency Medical Technology – Paramedic	AAS	Special **	CC
<b>Fire Science</b>			
Fire Science	CERT	CRTFIRESICIEN	CC
Fire Science	AAS	AASFIRESICIEN	CC
<b>Fitness And Sport Sciences</b>			
Coaching	CERT	CRTCOACHING	WC
Fitness Professional	CERT	CRTFITNESS	WC
<b>Forensics and Crime Scene Technology</b>			
Crime Scene Management	CERT	CRTFORENSICS	EC
<b>Histotechnology</b>			
Histotechnician	CERT	CRTHISTOTECH	WC
Histotechnician	AAS	AASHISTOTECH	WC
<b>Hospitality/Tourism</b>			
Travel Industry Operations	CERT	CRTRVLINDUS	EC
Travel Industry Operations Options—Tourism	AAS	AASTOURDESDV	EC
<b>Human Resources</b>			
Human Resources	CERT	CRTHUMANRES	CC
<b>Interior Design</b>			
Interior Design	AAS	AASDESIGN	DTC
<b>International Business Studies</b>			
International Business Studies	AAS	AASINTLBUSIN	WC
<b>Interpreter Training Program</b>			
Interpreter Training Program	AAA	AAAINTPTRAIN	WC
<b>Law Enforcement Related Instruction</b>			
Basic Law Enforcement	CERT	Special **	EC
Basic Law Enforcement Supervision	CERT	Special **	EC
Law Enforcement	AAS	Special **	EC
<b>Machine Tool Technology</b>			
Machine Tool Technology – Machine Operator	CERT	CRTMACHINTOOL	DTC
Manual Machinist			
Mechanical Inspector			
Computer Numerical Control (CNC) Machinist			
Computer Numerical Control (CNC) Programmer			
EDM Operator			
EDM Computer Numerical Control (CNC) Programmer			
Machine Tool Technology	AAS	AASMACHINTOOL	DTC

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\*\* Special Admissions Requirements—See an advisor

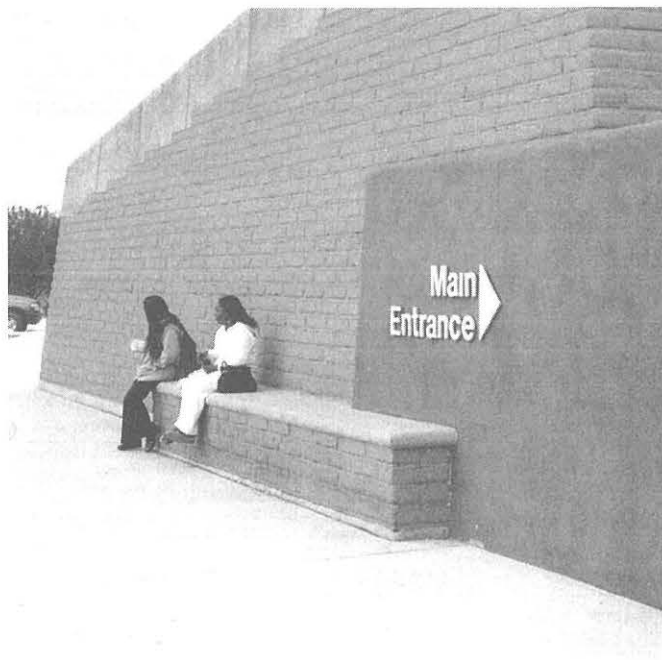
Occupational Program	Award	Program Code	Lead Campus*
<b>Nursing</b>			
Associate Degree Nursing	AAS	Special **	WC
<b>Office and Administrative Professions</b>			
Office Assistant	CERT	CRTADMINAIDE	DTC
Office Specialist	CERT	CRTADMINSPEC	DTC
Office and Administrative Professional	AAS	AASADMINSUPP	DTC
Records and Information Management	AAS	AASMEDSECRTY	DTC
Computer Applications Office Assistant	CERT	CRTCOMPAPPAD	DTC
Computer Applications Office Specialist	CERT	CRTCOMPAPPSP	DTC
<b>Paralegal (Legal Assistant)</b>			
Paralegal (Legal Assistant)	AAS	AASLEGALASST	DTC
Paralegal (Legal Assistant) – Advanced	CERA	CRDLEGALASST	DTC
<b>Pharmacy Technology</b>			
Pharmacy Technology	CERT	Special **	EC
Pharmacy Technology	AAS	Special **	EC
<b>Public Safety Communications</b>			
Basic Public Safety Communications	CERT	CRTBSAFETYCM	CC
Public Safety Communications	CERT	CRTSAFETYCOM	CC
<b>Radiologic Technology</b>			
Radiologic Technology	AAS	Special **	WC
Radiologic Technology – Magnetic Resonance Imaging	CERT	Special **	WC
<b>Real Estate</b>			
<i>See Real Estate Courses and Business Administration Degree</i>			
<b>Respiratory Therapist Program</b>			
Respiratory Care	AAS	Special **	WC
<b>Safety</b>			
Metropolitan Emergency Response System (MERS)	CERT	Special **	CC
<b>Social Services</b>			
Social Services	AAS	AASSOCIALSRV	WC
Substance Abuse Specialty	AAS	AASSUBSTABUS	WC
Youth Services Specialty	AAS	AASYOUTHSERV	WC
Basic Social Services	CERT	CRTSOCIALSRV	WC
Basic Social Services Substance Abuse	CERT	CRTSUBSTABUS	WC
Basic Social Services Domestic Violence Intervention	CERT	CRTDOMESVIOL	WC
Community Health Advisor	CERT	CRTHEALTHADV	WC
Developmental Disabilities Rehabilitation	CERT	CRTREHABSVS	DVC
<b>Technology</b>			
Technology	CERT	CRTTECHNOLGY	DVC
Automated Systems Technology	AAS	AASTECSSEMCON	DVC
Electronics Systems Technology	AAS	AASTECELECTR	DVC
Computer Technology	CERT	CRTTECCOMPUT	DVC
Information Technology Specialist	AAS	AASTECCNETWRK	DVC
Electro-Optical Assembly and Testing	CERT	CRTOPTICTECB	DVC
Optical Manufacturing	CERT	CRTOPTICTECA	DVC
Optical Systems Technology	AAS	AASOPTICSTEC	DVC
<b>Translation Studies</b>			
Translation Studies	CERT	CRTTRANSLATE	DTC



Occupational Program	Award	Program Code	Lead Campus*
<b>Truck Driver Training</b>			
Class A Vehicle Driver	CERT	CRTRUCKCLSA	CC
Professional Truck Driver	CERT	CRTRUCKDRIV	CC
Basic Truck Driver	CERT	CRTRUCK-B	CC
Straight Truck and Bus Driver	CERT	CRTRUCKSBUS	CC
Commercial Truck Driver	CERT	CRTRUCKDCOM	CC
<b>Veterinary Technology</b>			
Veterinary Technician	AAS	AASVETTECH	EC
<b>Welding</b>			
Welding	AAS	AASWELDING	DTC

## Transfer Programs

Transfer Program	Award	Program Code
<b>Administration of Justice</b>	AA	AOAADMINJUST
<b>American Indian Studies</b>	AA	AOAAMRINDSTU
<b>Anthropology</b>	AA	AOAANTHROPOL
<b>Apache</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Arabic</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Archaeology</b> <i>See Anthropology</i>		AOAANTHROPOL
<b>Arizona General Education Curriculum (AGEC-A, AGECE-B, and AGECE-S)</b> Use program code of the transfer degree.	CERT	
<b>Arts, Fine Arts</b> <i>See Fine Arts</i>	AA	AOAFINEARTS
<b>Asian Studies</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Astronomy</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Biochemistry</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Biology</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Business Administration</b>	ABUS	AOBBUSIADMIN
<b>Business Administration – Retailing</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Chemistry</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Chinese</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Computer Information Systems</b> <i>See Computer Information Systems Program Display</i>		
<b>Creative Writing</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Digital Arts</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Education – Elementary Education Secondary Education Special Education and Rehabilitation</b> <i>See Liberal Arts Degree</i>	AA	AOAEDUCATION AOALIBRALART AOALIBRALART AOALIBRALART



Transfer Program	Award	Program Code
<b>Engineering</b>	AGS	AGSGENRSTUDY
<b>English</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Environmental Science</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Fine Arts</b>	AA	AOAFINEARTS
<b>Fitness &amp; Sport Sciences – Physical Education Emphasis</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Fitness &amp; Sport Sciences – Exercise Science or Exercise Science and Wellness Emphasis</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>French</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Geology</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>German</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Greek</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Hebrew</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>History</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Hospitality</b>	AA	AOAHSPTALITY
<b>Interior Design</b>	AA	AOADESIGN
<b>Italian</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Japanese</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Journalism</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Latin</b> <i>See Liberal Arts Degree</i>		AOALIBRALART

Transfer Program	Award	Program Code
<b>Liberal Arts</b>	AA	AOALIBRALART
<b>Manufacturing Technology</b>	AS	AOSMANUFTECH
<b>Mathematics</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Music</b> <i>See the online Catalog</i>		
<b>Nursing</b> <i>See Associate Degree Nursing</i>		
<b>Physics</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Political Science</b>	AA	AOAPOLITLSCI
<b>Portuguese</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Pre-Agriculture</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Pre-Architecture</b>	CERT	CRTPREARCHIT
<b>Pre-Dentistry</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Pre-Law</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Pre-Medicine</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Pre-Pharmacy</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Pre-Veterinary Science</b> <i>See Science, Associate of Science</i>		AOSSCIENCE
<b>Psychology</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Public Administration</b> <i>See Business Administration</i>		AOBBUSIADMIN
<b>Reserve Officer Training Corp (ROTC)</b> <i>See ROTC section of this Catalog</i>		
<b>Russian</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Science, Associate of Science</b>	AS	AOSSCIENCE
<b>Social Services</b>	AA	AOASOCIALSRV
<b>Social Services, Substance Abuse Speciality</b> <i>See Social Services Degree</i>		AOASOCIALSRV
<b>Social Services, Youth Services Speciality</b> <i>See Social Services Degree</i>		AOASOCIALSRV
<b>Sociology</b>	AA	AOASOCIOLOGY
<b>Sign Language</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Spanish</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Speech Communication</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Theater</b>	AA	AOATHEATER
<b>Tohono O'odham</b> <i>See Liberal Arts Degree</i>		AOALIBRALART
<b>Yaqui</b> <i>See Liberal Arts Degree</i>		AOALIBRALART

## Non-Credit Certificates

The following program areas include non-credit certificates (CTD). These programs are clock-hour programs rather than credit programs, and are only offered at the Center for Training and Development located at the Desert Vista Campus.

Program Name	Certificate
<b><u>Business and Office</u></b>	
Accounting Assistant	CTD
Basic Teleservices	CTD
Computer Basics	CTD
Computer Software Applications	CTD
Data Base Applications	CTD
Data Entry Operator	CTD
File Clerk	CTD
Keyboard Operator	CTD
Legal Office Support Staff	CTD
Medical Office Specialist I	CTD
Medical Office Specialist II	CTD
Medical Terminology	CTD
Medical Transcriptionist	CTD
Microsoft FrontPage	CTD
Microsoft PowerPoint for Windows	CTD
Office Assistant I	CTD
Office Assistant II	CTD
Office Specialist	CTD
Professional Medical Coding Specialist	CTD
Quickbooks	CTD
Receptionist	CTD
Spreadsheet Applications	CTD
Unit Clerk	CTD
Word Processing Applications	CTD
<b><u>Food Service</u></b>	
Baker's Helper	CTD
Cook's Helper	CTD
Kitchen Helper	CTD
Pantry Worker	CTD
Preparation Cook	CTD

Program Name	Certificate
<b><u>Health Occupations</u></b>	
(Specialized Skills - Continuing Education Requirements for current LPNs indicated by *)	
Assisted Living Caregiver	CTD
Cardiopulmonary Resuscitation (CPR) Health Care Provider	CTD
Cardiopulmonary Resuscitation (CPR) Heart Saver	CTD
Certified Phlebotomist	CTD
Clinical Skills Update for Registered Nurse	CTD
Direct Support Professional	CTD
Drug Dosage Calculations for the Health Care Worker	CTD
First Aid	CTD
Gastric Intubation*	CTD
Home Health Aide	CTD
Intravenous Therapy for the LPN*	CTD
Licensed Practical Nurse Re-entry Course*	CTD
NCLEX-PN Review	CTD
Nursing Assistant	CTD
Patient Care Technician	CTD
Patient Care Technician II	CTD
Practical Nurse	CTD
Practical Nurse Proficiency Evaluation	CTD
Psychiatric Assistant	CTD
RN Refresher Course	CTD
Surgical Instrument Technician	CTD
Surgical Technologist	CTD
Venipuncture*	CTD
<b><u>Child Care</u></b>	
Child Care Assistant Teacher	CTD

Program Name	Certificate
<b><u>Employment Success Skills</u></b>	
Employability Skills	CTD
Job Readiness Skills	CTD
<b><u>Material Handler</u></b>	
Inventory Clerk	CTD
Material Handler	CTD
Receiving Clerk	CTD
Shipping Clerk	CTD
Warehousing Clerk	CTD
<b><u>Workforce Basic Skills</u></b>	
Mathematics	CTD
Reading/Interpreting Literature	CTD
Science	CTD
Social Studies	CTD
Writing	CTD
Workplace English as a Second Language, Reading Level A	CTD
Workplace English as a Second Language, Reading Level B	CTD
Workplace English as a Second Language, Reading Level C	CTD
Workplace English as a Second Language, Reading Level D	CTD
Workplace English as a Second Language, Listening Level A	CTD
Workplace English as a Second Language, Listening Level B	CTD
Workplace English as a Second Language, Listening Level C	CTD
Workplace English as a Second Language, Listening Level D	CTD
Workplace Math Level A	CTD
Workplace Math Level B	CTD
Workplace Math Level C	CTD
Workplace Math Level D	CTD





# Accounting

- Accounting — Certificate for Direct Employment
- Accounting — Associate of Applied Science Degree for Direct Employment

## Accounting — Certificate for Direct Employment

Program Identification Code:  
**CRTACCOUNTIN**

*This certificate provides skills and knowledge for entry-level employment into bookkeeping and accounting careers. This certificate also provides the foundation for the Associate of Applied Science Degree in Accounting. Students who plan to become Certified Public Accountants should take the courses required for the business administration transfer program.*

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

Communication Requirement . . . . .	†
WRT 101 or 107 or 154 fulfill this requirement	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49	
<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. . . . .	3
ACC 101	Financial Accounting . . . . .	3
ACC 102*	Managerial Accounting . . . . .	3
ACC 150*	Payroll Accounting . . . . .	3
ACC 200*	Accounting on the Microcomputer I. . . . .	4
ACC 204*	Individual Tax Accounting . . . . .	4
<b>Subtotal . . . . .</b>		<b>20</b>

<b>Required Support Courses</b>		
BUS 100	Introduction to Business. . . . .	3
BUS 220	Legal Environment of Business . . . . .	3
CSA 101	Computer Fundamentals . . . . .	3
or CIS 100*	Introduction to Computers and Information Systems. . . . .	3
MGT 110	Human Relations in Business and Industry . . . . .	3
WRT 101*	Writing I	
or WRT 107	Writing I for Non-Native Speakers of English	
or WRT 154	Career Communications. . . . .	3
<b>Subtotal . . . . .</b>		<b>15</b>

**Total credits as displayed . . . . . 38**

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

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

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

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	3
ECN 200 or ECN 202 fulfills 3 credits of this requirement. See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CSA 101 or CIS 100 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.

ACC 101	Financial Accounting . . . . .	3
ACC 102*	Managerial Accounting . . . . .	3
ACC 150*	Payroll Accounting . . . . .	3
ACC 173*	Introduction to Fund Accounting	
or ACC 210*	Accounting on the Microcomputer II. . . . .	3-4
ACC 200*	Accounting on the Microcomputer I. . . . .	4
ACC 201*	Intermediate Accounting I . . . . .	3
ACC 202*	Intermediate Accounting II . . . . .	3
ACC 203*	Cost Accounting . . . . .	3
ACC 204*	Individual Tax Accounting . . . . .	4
<b>Subtotal. . . . .</b>		<b>29-30</b>

### Required Support Courses

BUS 100	Introduction to Business . . . . .	3
BUS 220	Legal Environment of Business . . . . .	3
CSA 101	Computer Fundamentals	
or CIS 100*	Introduction to Computers and Information Systems. . . . .	3
ECN 200*	Basic Economic Principles	
or ECN 202*	Macroeconomic Principles . . . . .	3
MGT 110	Human Relations in Business and Industry . . . . .	3
MGT 280*	Business Organization and Management . . . . .	3
Other Electives . . . . .		3-6
Complete one course from the subject areas listed below (must be 100 level or higher): ANT, ECN, HUM, MAT, PHI, POS, PSY, REA, SOC, WRT		
<b>Subtotal. . . . .</b>		<b>21-24</b>

**Total credits as displayed . . . . . 65-69§**

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

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

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

Program Identification Code:  
**AASACCOUNTIN**

*The accounting degree program trains students in the theory, systems and basic problems of business accounting. The student will have the background for a beginning career in areas such as private, public and government accounting. Students who plan to become Certified Public Accountants should take the courses required for the business administration transfer program.*

# Administration of Justice Studies

- Administration of Justice Studies — Associate of Applied Science Degree for Direct Employment
- Administration of Justice Studies — Associate of Arts Degree for Transfer

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

Program Identification Code:  
**AASADMINJUST**

*The Associate of Applied Science degree for direct employment. This program is designed to provide the basic courses needed to seek employment or promotion in corrections and/or criminal justice and also transfers to the Bachelor of Applied Science (BAS) in Justice System Policy and Planning at NAU-Tucson. Students are encouraged to seek the help of an advisor, counselor or Administration of Justice faculty advisor before and during enrollment in the program.*

*Those students who plan to transfer to Arizona State University or the University of Arizona or another four-year institution should consult with an advisor or counselor and follow the transfer guide of the college they wish to attend. Verification of transfer courses should be established with the transfer university or college or with a Pima Community College advisor, counselor or faculty advisor.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101, 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
(NAU BAS degree requires MAT 142 or higher and a four hour lab science. Please refer to the NAU Liberal Studies transfer guide for options)	
Humanities and Social Science Requirement . . . . .	3
POS 110 fulfills 3 credits of Social Services requirement.	
See General Education section, page 49 for Humanities requirement.	
Computer and Information Literacy Requirement . . . . .	0-3
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>9-12</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 . . . . .	3
AJS 109	Criminal Law . . . . .	3
AJS 115	Criminal Procedures . . . . .	3
AJS 123*	Corrections as a Process . . . . .	3
AJS 201	Rules of Evidence. . . . .	3
AJS 212*	Juvenile Justice Procedures. . . . .	3
AJS 225	Criminology. . . . .	3
AJS 290*	Administration of Justice Field Experience . . . . .	3
In addition, select two of the following three courses:		
AJS 124	Ethics and the Administration of Justice . . . . .	3
AJS 210*	Police Community and Human Relations. . . . .	3
AJS 246	Race and Ethnicity Issues in the Administration of Justice . . . . .	3
<b>Subtotal . . . . .</b>		<b>30</b>
<b>Required Support Courses</b>		
POS 110	American National Government and Politics . . . . .	3
POS 130	American State and Local Governments and Politics . . . . .	3
PSY 101*	Introduction to Psychology. . . . .	4
SPE 120	Business and Professional Communication. . . . .	3
WRT 101	Writing I. . . . .	3
WRT 102	Writing II . . . . .	3
WRT 150*	Practical Communications	
or 154*	Career Communications. . . . .	3
<b>Subtotal . . . . .</b>		<b>22</b>
<b>Total credits as displayed . . . . .</b>		<b>61-64§</b>

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

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

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



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

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

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

English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6-9
See General Education section, page 50	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
See General Education section, page 50	
Social and Behavioral Sciences . . . . .	6-9
See General Education section, page 50	
Other Requirement Options . . . . .	0-6
See General Education section, page 50	
Special Requirements	
The I, C, and G requirements should be fulfilled by courses in the above categories.	
See General Education section, page 50	
<b>Subtotal . . . . .</b>	<b>35 ¥</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 . . . . .	3
AJS 109	Criminal Law . . . . .	3
AJS 115	Criminal Procedures . . . . .	3
AJS 123*	Corrections as a Process . . . . .	3
AJS 201	Rules of Evidence . . . . .	3
AJS 212*	Juvenile Justice Procedures . . . . .	3
AJS 225	Criminology . . . . .	3
Department Electives:		
In addition, select two of the following three courses		
AJS 124	Ethics and the Administration of Justice . . . . .	3
AJS 210	Police Community and Human Relations . . . . .	3
AJS 246	Race and Ethnicity Issues in the Administration of Justice . . . . .	3
<b>Subtotal . . . . .</b>		<b>27</b>
<b>Total credits as displayed . . . . .</b>		<b>62§</b>

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

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

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

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

Program Identification Code:  
**AOAADMINJUST**

*This program is for students interested in employment and/or advancement within the justice system, and is designed to transfer to the Bachelor of Science Degree in Criminal Justice at Northern Arizona University. This degree also transfers to the Bachelor of Applied Science (BAS) in Justice System Policy and Planning at NAU-Tucson.*

*Those students who plan to transfer to Arizona State University, the University of Arizona or another four-year institution should consult with a faculty advisor or counselor and follow the transfer guide of the college they wish to attend.*

# American Indian Studies

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

Program Identification Code:  
**AOAAMRINDSTU**

*This program is open to all students, Native American and non-native American for transfer to a university. In addition to preparing students for study of Native American issues and topics, it provides the groundwork for moving into other areas within Liberal Arts and Sciences at the upper level of the junior and senior year.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	3
ANT 206 fulfills 3 credits, complete one course from the Art List in the General Education section, page 50	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
See General Education section, page 50	
Social and Behavioral Sciences . . . . .	†
HIS 124, 148, HUM 260 fulfill this requirement.	
Other Requirement Options. . . . .	†
Second language courses fulfill this requirement.	
AGEC Special Requirements . . . . .	†
ANT 206, HIS 122, and HUM 260 fulfill this requirement.	
<b>Subtotal. . . . .</b>	<b>20 ¥</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ANT 206	Contemporary Native Americans of the Southwest . . . . .	3
HIS 122	Tohono O'odham History and Culture . . . . .	3
HIS 124	History and Culture of the Yaqui People. . . . .	3
HIS 148	History of Indians of North America. . . . .	3
HUM 260	Intercultural Perspectives. . . . .	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 completion of SPA 202* or SLG 202*. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the Language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.	
Electives . . . . .	9-13
Complete 9 -13 transferable electives from the American Indian Studies transfer guide or any transferable courses.	
<b>Subtotal. . . . .</b>	<b>25-29</b>

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

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

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

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

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

# Anthropology *(See also Archaeology.)*

## • Anthropology — Associate of Arts Degree for Transfer

The anthropology and archaeology programs prepare graduates for further academic studies at a four-year college or university as well as providing practical job-related skills. Anthropology students can select from an Associate of Arts Degree for Transfer program as well as a Field Archeology certificate that emphasizes archaeological fieldwork.

The Associate of Arts Degree for Transfer in anthropology provides a global understanding of the nature of humankind as well as developing the student's awareness of the biological and cultural development of humanity. Emphasis is placed on the heritage and cultural diversity of the Southwest. The program prepares students for upper division study in anthropology at a major university. The curriculum generally parallels the lower division anthropology and liberal arts requirements at the state universities.

## Anthropology — Associate of Arts Degree for Transfer

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

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

English Composition	6
See General Education section, page 50	
Humanities and Fine Arts	3
ANT 205 or 206 fulfill 3 credits of this requirement.	
Complete one course from the Art list.	
See General Education section, page 50	
Biological and Physical Sciences	8
See General Education section, page 50	
Mathematics	3
See General Education section, page 50	
Social and Behavioral Sciences	†
ANT 101 and 102 and SOC 201 or 204 fulfill this requirement.	
Other Requirements.	†
Second language course fulfills this requirement	
Special Requirements	
ANT 102 and 206 fulfill the C and G requirement.	
The I requirement should be fulfilled by courses in the above categories.	

**Subtotal. . . . . 20 ¥**

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

ANT 101	Human Origins and Prehistory	3
ANT 102	Introduction to Cultural Anthropology and Linguistics	3
ANT 200*	Biological Anthropology	3
ANT 210*	Cultural Anthropology	3
ANT 215	The Nature of Language	3
ANT 225*	Principles of Archaeology	3
Non-Western Civilization		
Complete one of the following:		
ANT 205	Introduction to Southwestern Prehistory	
or ANT 206	Contemporary Native Americans of the Southwest	3
ANT ELEC		6-8
Complete 6-8 credit hours of electives after consultation with an anthropology faculty advisor or counselor or continue with the second year of a transferable foreign language.		
<b>Subtotal. . . . .</b>		<b>27-29</b>

*continued next page*

Program Identification Code:  
**AOAANTHROPOL**

*After successfully completing this program students may be eligible to transfer to upper class levels in anthropology at a four-year college or university. Students should consult the catalog for the institution to which they plan to transfer in order to establish the graduation and anthropology major requirements and determine the transferability of Pima Community College courses.*

*Any student who completes this degree fulfills the state public universities' general education requirements as well as the lower division requirements for anthropology majors at the University of Arizona.*



## Anthropology — Associate of Arts Degree for Transfer *(continued)*

### Required Support Courses

SOC 201	Minority Relations and Urban Society	
or SOC 204	Gender Identities, Interactions and Relations	3
Art Elective		3
Second Language Requirement		8
Completion of a Language course numbered 202, fourth-semester level, or completion of SPA 202* or SLG 202*. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the Language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.		

**Subtotal** ..... 14

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

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

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

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

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

## Archaeology *(See also Anthropology)*

### • Field Archaeology Certificate

Students have the opportunity to develop a wide variety of skills and abilities in field archaeology. Emphasis is placed on actual field experience, supplemented by appropriate lecture courses. The curriculum is flexible enough to meet the needs of students pursuing professional training in archaeology, amateur archaeologists, and people with general interest in archaeology. The program strives to promote the preservation and conservation of archaeological resources and to contribute to the knowledge of the prehistory of Southern Arizona.

Students seeking to transfer to a university and major in Archaeology should see an advisor, follow the university transfer guide, and complete the Associate of Arts in Anthropology.

## Field Archaeology Certificate

Program Identification Code:  
**CRTFLDARCHEO**

*The archaeological fieldwork curriculum at Pima Community College is designed to provide interested persons with basic and advanced levels of practical archaeological field experience. Field courses are taught within the context of Arizona prehistory and emphasize an appreciation of the archaeological and environmental resources of the American Southwest. No prior experience or prerequisites are necessary to begin the program or to enroll for classes.*

### 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.

NOTE: General Education is not required for the Field Archaeology Option.

Communication Requirement ..... †  
WRT 101 fulfills this requirement.

Analysis and Critical Thinking Requirement ..... 3  
See General Education section, page 49

**Subtotal** ..... 3

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ANT 102	Introduction to Cultural Anthropology and Linguistics . . . . .	3
ARC 101	Human Origins and Prehistory . . . . .	3
ARC 180	Artifact Identification . . . . .	2
ARC 225*	Principles of Archaeology . . . . .	3
ARC 275	Archaeological Excavation I . . . . .	4
ARC 276*	Archaeological Exploration I . . . . .	4
<b>Subtotal</b>		<b>19</b>

Choose one of the following options: . . . . . 4-23  
(Department faculty advisor or counselor approval is recommended in the selection of the program option.)

#### Field Archaeology Option

ARC 205	Introduction to Southwestern Prehistory . . . . .	3
ARC 207*	Southwestern Prehistory Lab . . . . .	1

#### Field Methods Option

ARC 250*	Archaeology Laboratory . . . . .	4
ARC 265	Mapping Concepts . . . . .	1
ARC 277*	Archaeological Excavation II . . . . .	4
ARC 278*	Archaeological Exploration II . . . . .	4
ARC 285*	Field Mapping I . . . . .	4
BCT 204*	Construction Surveying	
or ENG 130IN*	Elementary Surveying . . . . .	3
WRT 101*	Writing I . . . . .	3

#### Computer Archaeology Option

ARC 265	Mapping Concepts . . . . .	1
ARC 281	Global Positioning Systems I . . . . .	2
ARC 282*	Managing Archaeological Data . . . . .	2
ARC 283*	ArchaeoCAD	
or ARC 284*	Archaeocartography/Desktop Mapping . . . . .	3
ARC 286*	Field Mapping II	
or ARC 289*	Global Positioning Systems II . . . . .	2-4
WRT 101*	Writing I . . . . .	3
CIS	Programming Language Elective . . . . .	3

**Total credits as displayed . . . . . 26-45**

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

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



# Arizona General Education Curriculum (AGEC) Certificate for Transfer

## Program Identification Codes:

Students should use the Associate of Arts, Associate of Business Administration, or Associate of Science program identification code.

*Upon completion of this certificate, the student fulfills the lower-division general education at all Arizona public universities and colleges including the University of Arizona, Arizona State University, and Northern Arizona University. It is also applicable to the University of Phoenix and may be applicable to other colleges and universities. Students are strongly advised to complete the associate degree after completing this certificate. See an advisor about completing an associate degree.*

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

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

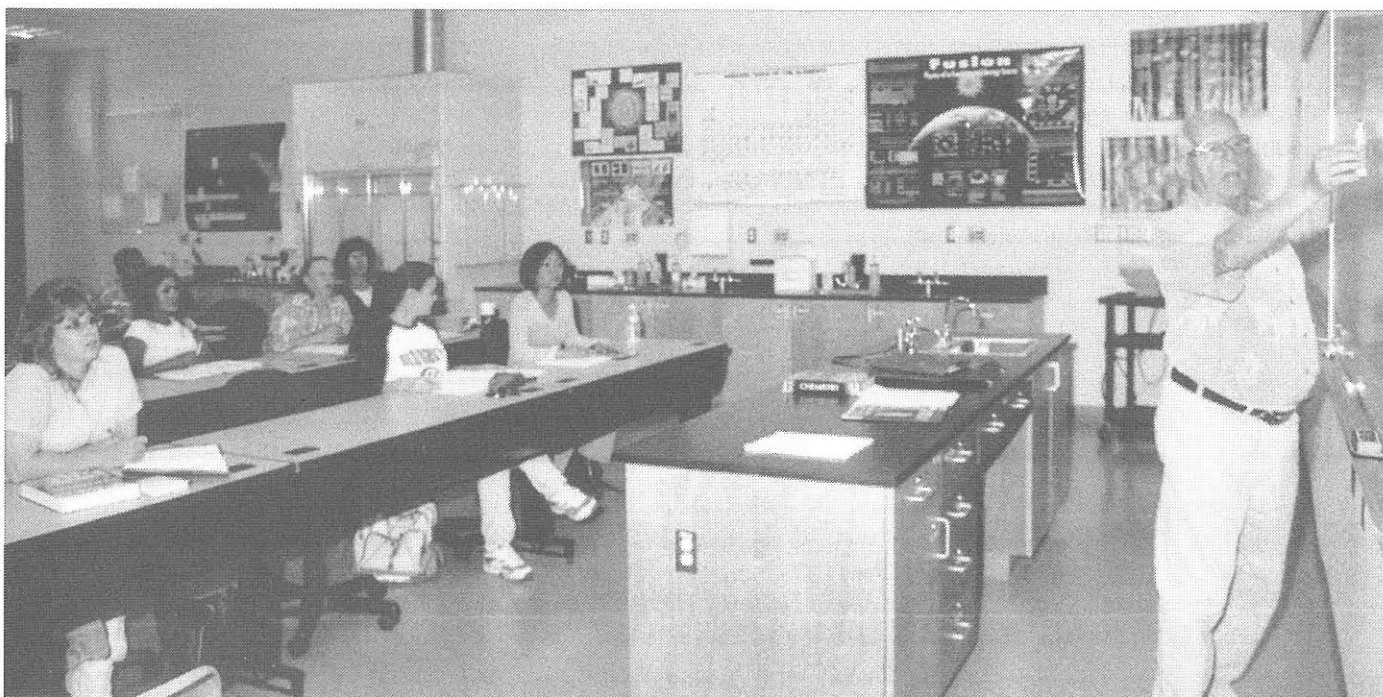
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.

English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6-9
See General Education section, page 50	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
General Education section, page 50	
Social and Behavioral Sciences . . . . .	6-9
See General Education section, page 50	
Other Requirement Options . . . . .	0-6
See General Education section, page 50	
AGEC Special Requirements . . . . .	*
The I, C, and G requirements should be fulfilled by courses in the above categories.	
See General Education section, page 50	
<b>Subtotal . . . . .</b>	<b>35</b>

## Required Core Courses

See the appropriate Associate of Arts, Associate of Science, or Associate of Business Degrees. The AGEC certificate will be awarded in the process of completing the Associate Degree for Transfer. See your advisor or counselor.

**Total credits as displayed . . . . . 35**



# Arts, Applied

- Applied Arts — Associate of Applied Arts Degree

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

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	3
Core course fulfills 3 credits of the Humanities requirement	
See General Education section, page 49, for the Social Services requirement	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 49	
<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.

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

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

Complete nine courses from any of the following categories. . . . .	27
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#### Arts and Crafts

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

#### Photography

ART 140*	Photography I . . . . .	3
ART 141*	Photography II . . . . .	3
ART 143*	Commercial Photography I. . . . .	3
ART 230	History of Photography. . . . .	3

*continued next page*

Program Identification Code:  
**AAAAPPLDARTS**

*This program gives students the opportunity either to gain experience in several media or to concentrate on a single area of interest. Instruction is offered in basic design, color, drawing, painting, photography, weaving, fibers, ceramics, metalwork, printmaking, screen printing, art history and sculpture, and fashion design. All art classes in the program are taught by professional working artists. Students are encouraged to become involved in the art community through extracurricular activities such as the Pima Community College Art Gallery and the Visiting Artist program. Students select art electives and support courses according to their major areas of interest. Applied Arts faculty advisors or counselors are located on the West Campus.*



## Applied Arts — Associate of Applied Arts Degree for Direct Employment *(continued)*

### Art History and Art Education

ART 132	Modern Art Survey	3
ART 135	Pre-Columbian Art	3
ART 136	Masks	3

### Drawing and Sculpture

ART 210*	Drawing II	3
ART 212*	Printmaking I	3
ART 213*	Life Drawing	3
ART 214*	Printmaking II	3
ART 215*	Painting I	3
ART 216*	Screen Printing I	3
ART 217*	Painting II	3
ART 218*	Screen Printing II	3
ART 219*	Printmaking III	3
ART 220*	Sculpture	3

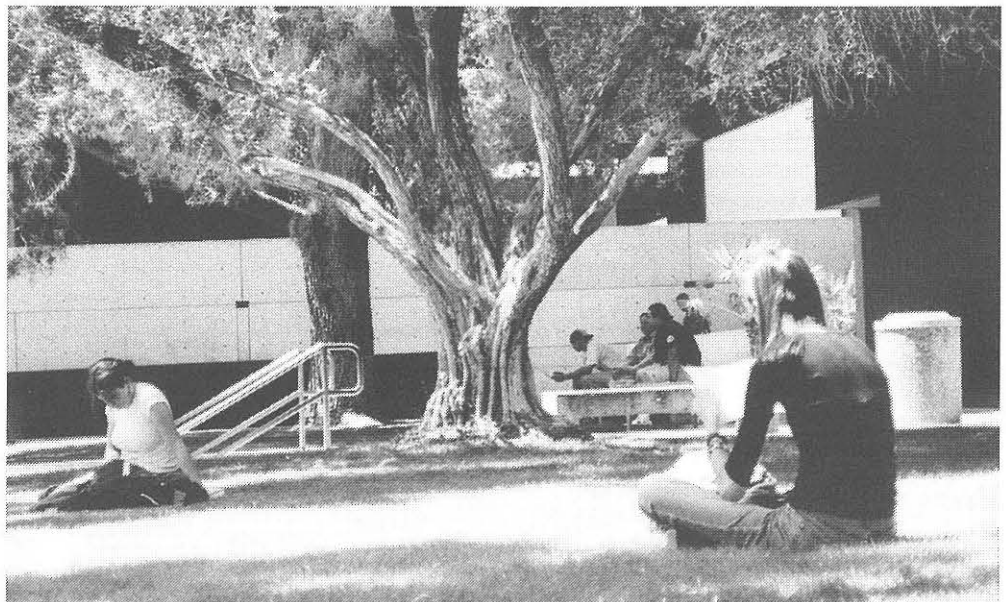
### Fashion Design

FDC 111	Clothing Construction I: Beginning	3
FDC 121	Flat Pattern Making	3
FDC 122	History of Clothing	3
FDC 126	Textiles	3
FDC 131 or FDC 132	Clothing Selection Society, Culture, and Dress	3
FDC 141	Introduction to Fashion Design	3
FDC 211*	Clothing Construction II: Advanced	3
FDC 241*	Introduction to Draping	3

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

\*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.



# Arts, Fine

- Fine Arts — Associate of Arts Degree for Transfer

## Fine Arts — Associate of Arts Degree for Transfer

### Arizona General Education Curriculum Requirements (AGEC-A) -

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

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

English Composition . . . . . 6  
See General Education section, page 50

Humanities and Fine Arts . . . . . †  
ART 100, 110, 130 fulfill this requirement.

Biological and Physical Sciences . . . . . 8  
See General Education section, page 50

Mathematics . . . . . 3  
See General Education section, page 50

Social and Behavioral Sciences . . . . . 6-9  
See General Education section, page 50

Other Requirements . . . . . 0-3  
See General Education section, page 50

Special Requirements  
ART 130 fulfills the I and G requirement. Select courses from the above categories to fulfill the C requirement.

See General Education section, page 50

**Subtotal . . . . . 26**

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

ART 100	Basic Design . . . . .	3
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ART 110*	Drawing I . . . . .	3
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ART 115*	Color and Composition . . . . .	3
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ART 120*	Sculptural Design . . . . .	3
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ART 130	Art and Culture: Prehistoric Through Gothic . . . . .	3
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ART 131	Art and Culture: Late Gothic Through Modern Periods . . . . .	3
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ART 210*	Drawing II . . . . .	3
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or ART 213*	Life Drawing . . . . .	3
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**Subtotal . . . . . 21**

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

Art Electives

Complete five courses at the 100 level or higher from any of the following categories:

#### Art in the Craft Media

ART 160*	Ceramics I . . . . .	3
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ART 170*	Metalwork I: Jewelry . . . . .	3
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ART 180*	Weaving I: Four-Harness Loom . . . . .	3
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ART 181*	Mixed Media Fibers . . . . .	3
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ART 260*	Ceramics II . . . . .	3
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ART 261*	Ceramics III . . . . .	3
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ART 262*	Ceramics IV . . . . .	3
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ART 270*	Metalwork II: Jewelry . . . . .	3
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ART 271*	Metalwork II: Smithing and Casting . . . . .	3
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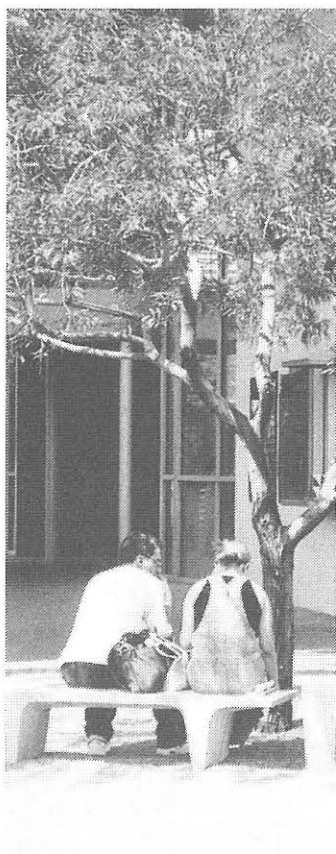
ART 280*	Weaving II . . . . .	3
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Program Identification Code:

**AOAFINEARTS**

*This degree is designed to transfer to the Arizona public universities into a Bachelor of Fine Arts Degree. See an advisor or counselor.*

**Fine Arts — Associate of Arts Degree for Transfer** *(continued)***Photography**

ART 140*	Photography I .....	3
ART 141*	Photography II .....	3
ART 143*	Commercial Photography I .....	3
ART 230	History of Photography .....	3

**Art History**

ART 132	Modern Art Survey .....	3
ART 135	Pre-Columbian Art .....	3
ART 136	Masks .....	3

**Drawing, Painting, and Sculpture**

ART 210*	Drawing II .....	3
ART 213*	Life Drawing .....	3
ART 215*	Painting I .....	3
ART 217*	Painting II .....	3
ART 220*	Sculpture .....	3

**Printmaking**

ART 212*	Printmaking I .....	3
ART 214*	Printmaking II .....	3
ART 216*	Screenprinting I .....	3
ART 218*	Screenprinting II .....	3
ART 219*	Printmaking III .....	3

**Subtotal** ..... **15**

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

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

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

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

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

# Associate of Arts Degree for Transfer in Liberal Arts

## Arizona General Education Curriculum Requirements (AGEC-A) -

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

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

English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6-9
See General Education section, page 50	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
See General Education section, page 50	
Social and Behavioral Sciences . . . . .	6-9
See General Education section, page 50	
Other Requirement Options . . . . .	0-6
See General Education section, page 50	
AGEC Special Requirements . . . . .	*
The I, C, and G requirement should be fulfilled by courses in the above categories. See General Education section, page 50	
<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 of interest, any transferable courses, or second language courses.

Second Language Requirement . . . . .	0-16
The second language requirement is dependent upon your major. It is not a requirement for this degree. Most university degrees require a language courses numbered 202, fourth-semester level, or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.)	
<b>Subtotal . . . . .</b>	<b>25-29</b>
<b>Total credits as displayed . . . . .</b>	<b>60-64§</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.

Program Identification Code:

**AOALIBRALART**

*This degree display is designed for students planning to transfer to a university and not planning to major in business or science. See the Associate of Business Administration (ABUS) if you are interested in business or the Associate of Science (AS) degree displays if interested in science. See an advisor or counselor and ask for the Associate of Arts program guide and checksheet.*



# Associate of Science Degree for Transfer

Program Identification Code:  
**AOSSCIENCE**

*This degree display is designed for students planning to transfer to a university and planning to major in science. See the Associate of Business Administration (ABUS) if you are interested in business or the Liberal Arts — Associate of Arts (AA) degree displays if interested in other majors. See an advisor or counselor and ask for the Associate of Science program guide and checksheet.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6-9
See General Education section, page 50	
Biological and Physical Sciences . . . . .	†
CHM 151/151LB/151IN and 152/152LB/152IN or PHY 210/210LB/IN and 216/216LB/IN fulfill this requirement.	
Mathematics . . . . .	†
MAT 220 fulfills this requirement.	
Social and Behavioral Sciences . . . . .	6-9
See General Education section, page 50	
Other Requirement Options . . . . .	0-6
See General Education section, page 50	
AGEC Special Requirements . . . . .	*
The I, C, and G requirement should be fulfilled by courses in the above category.	
See General Education section, page 50	
<b>Subtotal . . . . .</b>	<b>24¥</b>

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

CHM 151/151LB/151IN* General Chemistry I and CHM152/152LB/152IN* General Chemistry II or PHY 210/210LB/IN* Introductory Mechanics and PHY216/216LB/IN* Introductory Electricity and Magnetism. . . . .	10
MAT 220* Calculus I . . . . .	5
Major/Electives . . . . .	21-25
The second language requirement is dependent upon your major. It is not a requirement of this degree. Most university degrees require a language course numbered 202, fourth-semester level or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.)	
<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.

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

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

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

## Astronomy

A student planning on obtaining a degree with an option in Astronomy should follow the **Associate of Science Degree for Transfer**. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Program Identification Code:  
**AOSSCIENCE**

## Automotive Technology

- Automotive Mechanics — Certificate for Direct Employment
- Automotive Technology — Associate of Applied Science Degree for Direct Employment

The automotive classes on the Downtown Campus are offered in a self-paced format. The program is accredited by the National Automotive Technician Education Foundation (NATEF)/Automotive Service Excellence (ASE). Students may enter classes and reserve lab time within the first two weeks of fall and spring semesters and within the first week of the summer schedule and complete the work at their own speed according to a schedule of their own choice. Further information on course scheduling should be obtained from an automotive technology faculty advisor or counselor on the Downtown Campus.

Automotive courses meet the needs of the beginner, the technician who wants to update skills and the do-it-yourself person. The automotive programs may also help students enter the automotive field in positions other than auto technician such as service writer, parts specialist, and automotive related sales positions. The automotive program offers a one-year certificate and a two-year Associate of Applied Science Degree in Mechanical Repair which prepares students for entry level positions.

All students taking Downtown Campus automotive classes must have safety glasses and work shoes.

A person majoring in automotive technology may obtain extra experience while enrolled in classes by registering for additional practice opportunities. See an automotive faculty advisor for details.

### Automotive Mechanics — Certificate for Direct Employment

#### Entrance Requirements

- Entrance requirements for this certificate are: AUT 089 and AUT 101

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
AUT 105	Light Line Maintenance . . . . .	3
AUT 120	Engine Diagnosis and Repair . . . . .	3
AUT 125	Tune-up and Emissions Troubleshooting . . . . .	3
AUT 128	Automotive Electrical Fundamentals and Applications . . . . .	3
AUT 132	Automotive Drivetrain Removal and Replacement . . . . .	3
AUT 139	Automotive Steering and Alignment Systems . . . . .	3
AUT 140	Automotive Brakes Diagnosis and Repair . . . . .	3
AUT 142	Automotive Heating, Ventilation, and Air Conditioning . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>24</b>

Program Identification Code:  
**CRTAUTOMECHS**

*Students in the automotive mechanics one-year certificate program are trained in general automotive repair for entry level positions. Students who decide to move on to the Associate of Applied Science Degree may use the certificate courses as the first step.*

## Automotive Technology — Associate of Applied Science Degree for Direct Employment

Program Identification Code:  
**AASAUTOTECHN**

*Students in the two-year Associate of Applied Science (AAS) degree in mechanical repair prepare for entry level technician positions. The additional course work further emphasizes advanced training in electrical and electronic systems, engine, transmission/transaxle, drivetrain, and suspension and steering diagnosis and repair. Students who have completed the certificate may use all those courses toward the AAS degree.*

### Entrance Requirements

- Entrance requirements for the Associate of Applied Science degree are AUT 089 and AUT 101

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	1
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>19</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
AUT 105	Light Line Maintenance . . . . .	3
AUT 120	Engine Diagnosis and Repair . . . . .	3
AUT 122	Engine Remove and Install. . . . .	3
AUT 124	Automotive Diesel Engine Tune-up . . . . .	3
AUT 125	Tune-up and Emissions Troubleshooting . . . . .	3
AUT 126	Engine Performance and Drivability Troubleshooting . . . . .	3
AUT 128	Automotive Electrical Fundamentals and Applications . . . . .	3
AUT 129	Automotive Electrical Accessories . . . . .	3
AUT 132	Automotive Drivetrain Removal and Replacement . . . . .	3
AUT 133	Automatic Transmission/Transaxle Service and Rebuilding . . . . .	3
AUT 136	Automotive Manual Transmission and Driveline Service . . . . .	3
AUT 138	Automotive Suspension Systems . . . . .	3
AUT 139	Automotive Steering and Alignment Systems . . . . .	3
AUT 140	Automotive Brakes Diagnosis and Repair . . . . .	3
AUT 142	Automotive Heating, Ventilation, and Air Conditioning . . . . .	3
<b>Subtotal . . . . .</b>		<b>45</b>
<b>Total credits as displayed . . . . .</b>		<b>64§</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.

# Aviation Technology

- Advanced Aviation Technology Certificate for Direct Employment
- Aviation Technology — Associate of Applied Science Degree for Direct Employment

This certificate or degree prepares students for careers in Aviation Technology with options in Aircraft Airframe and Powerplant, Composites Fabrication and Repair, Interior Installer, or Structural Repair. The Aircraft Airframe and powerplant courses prepare experienced aircraft mechanics for Federal Aviation Administration (FAA) airframe and powerplant certification. Coursework is open to all students but only those meeting the experience requirements of Federal Aviation Regulation, Part 65, can test for certification. Approval to test is granted by the FAA and requires at least 30 months of experience performing maintenance to both airframe and powerplants or 18 months performing maintenance to either airframe or powerplants. For more information call (520) 206-5910.

## Advanced Aviation Technology — Certificate for Direct Employment

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

Communication Requirement . . . . .	3
See General Education section, page 49	
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.

AVM 110	Aircraft Blueprint Reading . . . . .	3
GTM 105	Applied Technical Mathematics . . . . .	3
<b>Subtotal . . . . .</b>		<b>6</b>

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

Choose one of the following options . . . . . 22-40  
(Department faculty advisor or counselor approval is recommended in the selection of the program option.)

#### Airframe and Powerplant Option

AVM 105	Aircraft Sheetmetal Repair . . . . .	4
AVM 120	Aviation Electricity . . . . .	4
AVM 130*	Aircraft Composites Materials and Repair . . . . .	4
AVM 220*	Airframe Structures . . . . .	6
AVM 221*	Airframe Systems and Components . . . . .	6
AVM 230*	Power Plant Mechanics . . . . .	6

#### Composites Fabrication and Repair Option

AVM 105	Aircraft Sheetmetal Repair . . . . .	4
AVM 123	Airframe Familiarization . . . . .	3
AVM 160	Aircraft Materials and Metallurgy . . . . .	3
AVM 165	Aircraft Hardware and Fasteners . . . . .	3
AVM 210/210LB*	Advanced Composite Aircraft Repair I . . . . .	5
AVM 260/260LB*	Advanced Composite Aircraft Repair II . . . . .	4

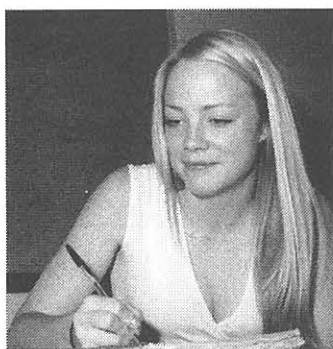
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Program Identification Code:  
**CRTAVIATIONA**

*This certificate prepares students for entry-level positions in the aviation technologies industry and is the foundation for the Associate of Applied Science Degree in Aviation Technology.*



## Advanced Aviation Technology — Certificate for Direct Employment *(continued)*



### Interior Installer Option

AVM 112	Composite Fabrication . . . . .	3
AVM 114	Regulatory Requirements . . . . .	3
AVM 116	Tool Usage and Safety . . . . .	2
AVM 121	Aircraft Interior Installer I . . . . .	5
AVM 122*	Aircraft Interior Installer II . . . . .	5
AVM 123	Airframe Familiarization . . . . .	3
AVM 124*	Aircraft Interior Installer III . . . . .	5

### Structural Repair Option

AVM 101*	Structural Repair I . . . . .	4
AVM 102*	Structural Repair II . . . . .	4
AVM 123	Airframe Familiarization . . . . .	3
AVM 150*	Structural Repair III . . . . .	4
AVM 151*	Structural Repair IV . . . . .	4
AVM 160	Aircraft Materials and Metallurgy . . . . .	3
AVM 165	Aircraft Hardware and Fasteners . . . . .	3
AVM 170	Aircraft Powerplant Familiarization . . . . .	3
AVM 203*	Structural Repair V . . . . .	4
AVM 204*	Structural Repair VI . . . . .	4
AVM 250*	Structural Repair VII . . . . .	4

**Total credits as displayed . . . . . 31-49**

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

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

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

Program Identification Code:  
**AASAVIATION**

*This degree provides the skills and knowledge for a career in aviation technology with specialized skills in either airframe and powerplant, composites fabrication and repair, interior installer, or structural repair.*

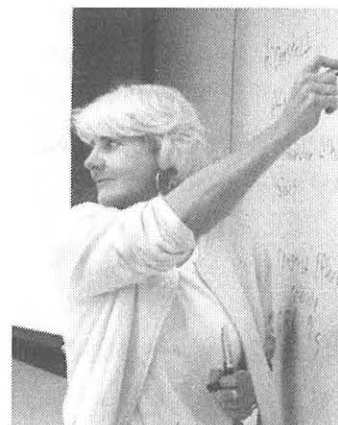
### General Education Requirements - A grade of C or better is required for graduation.

Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	3
GTM 105 fulfills 3 credits of this requirement.	
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	3
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>18</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
Choose one of the following options: . . . . .		42-46
(Department faculty advisor or counselor approval is recommended in the selection of the program option.)		
<b>Airframe and Powerplant</b>		
AVM 105	Aircraft Sheetmetal Repair . . . . .	4
AVM 110	Aircraft Blueprint Reading . . . . .	3
AVM 120	Aviation Electricity . . . . .	4
AVM 130*	Aircraft Composite Materials and Repair . . . . .	4
AVM 220*	Airframe Structures . . . . .	6
AVM 221*	Airframe Systems and Components . . . . .	6
AVM 230*	Powerplant Mechanics . . . . .	6
GTM 105*	Applied Technical Mathematics . . . . .	3
Electives	. . . . .	6
<b>Composites Fabrication and Repair</b>		
AVM 105	Aircraft Sheetmetal Repair . . . . .	4
AVM 110	Aircraft Blueprint Reading . . . . .	3
AVM 123	Airframe Familiarization . . . . .	3
AVM 160	Aircraft Materials and Metallurgy . . . . .	3
AVM 165	Aircraft Hardware and Fasteners . . . . .	3
AVM 210/210LB*	Advanced Composite Aircraft Repair I . . . . .	5
AVM 260/260LB*	Advanced Composite Aircraft Repair II . . . . .	4
GTM 105*	Applied Technical Mathematics . . . . .	3
Electives	. . . . .	14
<b>Interior Installer</b>		
AVM 110	Aircraft Blueprint Reading . . . . .	3
AVM 112	Composites Fabrication . . . . .	3
AVM 114	Regulatory Requirements . . . . .	3
AVM 116	Tool Usage and Safety . . . . .	2
AVM 121	Aircraft Interior Installer I . . . . .	5
AVM 122*	Aircraft Interior Installer II . . . . .	5
AVM 123	Airframe Familiarization . . . . .	3
AVM 124*	Aircraft Interior Installer III . . . . .	5
GTM 105*	Applied Technical Mathematics . . . . .	3
Electives	. . . . .	10
<b>Structural Repair</b>		
AVM 101*	Structural Repair I . . . . .	4
AVM 102*	Structural Repair II . . . . .	4
AVM 110	Aircraft Blueprint Reading . . . . .	3
AVM 123	Airframe Familiarization . . . . .	3
AVM 150*	Structural Repair III . . . . .	4
AVM 151*	Structural Repair IV . . . . .	4
AVM 160	Aircraft Materials and Metallurgy . . . . .	3
AVM 165	Aircraft Hardware and Fasteners . . . . .	3
AVM 170	Aircraft Powerplant Familiarization . . . . .	3
AVM 203*	Structural Repair V . . . . .	4
AVM 204*	Structural Repair VI . . . . .	4
AVM 250*	Structural Repair VII . . . . .	4
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>60-64§</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.



## Biochemistry

A student planning on obtaining a degree with an option in Biochemistry should follow the **Associate of Science Degree for Transfer**. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Program Identification Code:

**AOSSCIENCE**

## Biology — Associate of Science Degree for Transfer

A student planning on obtaining a biology, microbiology and molecular/cellular biology degree from the University of Arizona should follow the **Associate of Science Degree for Transfer**. Students seeking a biology degree from Arizona State University or Northern Arizona University should follow the **Associate of Arts Degree for Transfer in Liberal Arts**. See an advisor or counselor for transfer guides.

Students interested in pre-agriculture, pre-dental, pre-medical, pre-pharmacy and pre-veterinary subject areas should consult the catalog of the school to which they plan to apply. See a biology faculty advisor or counselor.

A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a biology advisor or counselor to plan courses. Students who plan to transfer to an upper division school to complete their degree should also contact an advisor or counselor from their chosen school for verification of transfer courses as soon as possible.

Program Identification Code:

**AOSSCIENCE**

## Building and Construction Technologies

- Basic Building and Construction Technologies Certificate for Direct Employment
- Advanced Building and Construction Technologies Certificate for Direct Employment
- Building and Construction Technologies — Associate of Applied Science Degree for Direct Employment

This program provides training in building management: construction technology; carpentry, facilities maintenance; heating, ventilation, air conditioning, and refrigeration (HVAC-R); electrical; and plumbing, and control systems. Four programs are offered:

- 1) A Basic Certificate provides basic skills for entry level helper positions in Facilities Maintenance
- 2) An advanced certificate provides basic skills for entry level helper with options in Facilities Maintenance, HVAC-R, Electrical, Plumbing, Carpentry, and Control Systems
- 3) An Associate of Applied Science Degree in Building and Construction Technologies provides options in Building Management, Construction Technology, Carpentry, Facilities Maintenance, HVAC-R, Electrical, and Plumbing, and Control Systems
- 4) An Associate of Applied Science Degree in Building and Construction Technologies-Construction Management provides a transfer track to Northern Arizona University's Bachelor of Science Degree in Construction Management.

The design of the program is to get the applicants involved with the work place after starting the program and continuing their education in the certificates or Associate of Applied Science Degrees. Most of the courses in this program use self-paced, competency-based instruction techniques. This method of presentation allows applicants to demonstrate their proficiencies as outlined in required course work using both applied knowledge, hands-on techniques, and work experiences to complete the program at their own pace.

This program requires high levels of motivation, self esteem, dedication to learning, ability to follow instructions, and excellent study habits. Program courses and advising are available at the Downtown Campus.

## Basic Building and Construction Technologies 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 Building and Construction Technologies	1
BCT 111	Basic Safety**	1
BCT 113	Hand and Power Tools**	1
BCT 114	Blueprint Reading**	1
BCT 115	Basic Rigging**	1
BCT 116*	Occupational Safety and Health Administration Safety Training for Building and Construction Technologies	1
<b>Subtotal</b>		<b>6</b>
<b>Required Support Courses</b>		
GTM 105*	Applied Technical Mathematics	3
<b>Technical Electives:</b>		
Complete 9 credit hours from the following list with the approval of the department chair or faculty advisor:		
BCT 103, 104, 106, 145, 150, 172		9
<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.

Program Identification Code:  
**CRTBLDGCON-B**

*This program provides entry-level skills and foundations which permit an applicant to enter the work force as an entry level helper in facilities maintenance. Students can progress from this certificate to the Advanced Building and Construction Technologies Certificate and on to the Building and Construction Technologies Associate of Applied Science degree.*

## Advanced Building and Construction Technologies Certificate for Direct Employment

<b>General Education Courses - A grade of C or better is required for graduation.</b>	
Communication Requirement	3
See General Education section, page 49	
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>		
BCT 100	Professionalism in Service for Building and Construction Technologies	1
BCT 111	Basic Safety**	1
BCT 113	Hand and Power Tools**	1
BCT 114	Blueprint Reading**	1
BCT 115	Basic Rigging**	1
BCT 116*	Occupational Safety and Health Administration Safety Training for Building and Construction Technologies	1
<b>Subtotal</b>		<b>6</b>

*continued next page*

Program Identification Code:  
**CRTBLDGCON-A**

*This program provides six options: facilities maintenance [heating, ventilation, air conditioning, and refrigeration (HVAC-R)], electrical, plumbing, carpentry, and control systems. This program provides advanced skill levels found in the entry level technician/journeyman levels of these crafts and trades. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale. This level of employment requires good basic reading, writing, math and area of concentration skills.*



## Advanced Building and Construction Technologies Certificate for Direct Employment *(continued)*

*In addition, it requires good work habits and the ability to follow instructions given by employers and more advanced technicians/journeymen in supervisory positions in order to be successful in the workplace. This certificate is a career ladder step to the Building and Construction Technologies Associate of Applied Science Degree.*

Course Number	Course Title	Credit Hours
<b>Required Support Courses</b>		
CSA 100	Computer Literacy . . . . .	1
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>BCT Technical Electives:</b> . . . . .		<b>4</b>
Complete four credit hours of BCT course work with the approval of the department chair or faculty advisor		
<b>Subtotal</b> . . . . .		<b>8</b>
<b>Core Options - A grade of C or better is required for graduation.</b>		
Choose one of the following options: . . . . .		15-16
Department chair or faculty advisor approval is recommended in the selection of the option.		
<b>Facilities Maintenance</b>		
BCT 103*	Principles and Concepts for HVAC . . . . .	4
BCT 104*	Introduction to Equipment Maintenance . . . . .	4
BCT 106*	Soldering and Brazing for Building and Construction Technologies . . . . .	4
BCT 172*	Building and Construction Technologies Electrical I . . . . .	4
<b>Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R)</b>		
BCT 103*	Principles and Concepts for HVAC . . . . .	4
BCT 106*	Soldering and Brazing for Building and Construction Technologies . . . . .	4
BCT 126*	HVAC Electricity, Circuitry, and Controls . . . . .	4
BCT 172*	Building and Construction Technologies Electrical I . . . . .	4
<b>Electrical</b>		
BCT 135*	National Electrical Code Residential Wiring Applications . . . . .	4
BCT 172*	Building and Construction Technologies Electrical I . . . . .	4
BCT 173*	Building and Construction Technologies Electrical II . . . . .	4
BCT 174*	Building and Construction Technologies Electrical III . . . . .	4
<b>Plumbing</b>		
BCT 104*	Introduction to Equipment Maintenance . . . . .	4
BCT 106*	Soldering and Brazing for Building and Construction Technologies . . . . .	4
BCT 150*	Plumbing Basics . . . . .	4
BCT 242*	Cross Connection Control . . . . .	3
<b>Carpentry</b>		
BCT 101	Principles of Construction . . . . .	3
BCT 102	Building Materials . . . . .	3
BCT 120*	Blueprint Reading for Construction . . . . .	3
BCT 145*	Carpentry I . . . . .	4
BCT 146*	Woodworking . . . . .	3
<b>Control Systems</b>		
BCT 103*	Principles and Concepts for HVAC . . . . .	4
BCT 126*	HVAC Electricity, Circuitry, and Controls . . . . .	4
BCT 152*	Programmable Logic Controllers for Energy Management Systems I . . . . .	4
BCT 172*	Building and Construction Technologies Electrical I . . . . .	4
<b>Total credits as displayed</b> . . . . .		<b>32-33</b>

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

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

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

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

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement . . . . .	6	
See General Education section, page 49		
Analysis and Critical Thinking Requirement . . . . .	3	
GTM 105 fulfills 3 credits of this requirement. See General Education section, Requirements for Direct Employment Programs		
Humanities and Social Science Requirement . . . . .	6	
See General Education section, page 49		
Computer and Information Literacy Requirement . . . . .	†	
CSA 100 fulfills 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.

BCT 100	Professionalism in Service for Building and Construction Technologies . . . . .	1
BCT 111	Basic Safety** . . . . .	1
BCT 113	Hand and Power Tools** . . . . .	1
BCT 114	Blueprint Reading** . . . . .	1
BCT 115	Basic Rigging** . . . . .	1
BCT 116*	Occupational Safety and Health Administration Safety Training for . . . . .	1
Building and Construction Technologies . . . . .		1
<b>Subtotal . . . . .</b>		<b>6</b>

### Required Support Courses

CSA 100	Computer Literacy . . . . .	1
GTM 105*	Applied Technical Mathematics . . . . .	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 Options: - A grade of C or better is required for graduation.

Choose one of the following options: . . . . .	33-36
Department chair or faculty advisor approval is recommended in the selection of the program option.	

#### Building Management

ACC 101	Financial Accounting . . . . .	3
BCT 102	Building Materials . . . . .	3
BCT 120*	Blueprint Reading for Construction . . . . .	3
BUS 220	Legal Environment of Business . . . . .	3
CSA 110	Spreadsheets: Microsoft Excel . . . . .	3
DES 111	Fundamentals of Design . . . . .	3
MGT 122	Supervision . . . . .	3
RLS 101	Introduction to Real Estate Principles . . . . .	3
Technical Electives . . . . .		11
Complete 11 credit hours from the following list with the approval of the department chair or faculty advisor BCT, CAD, and DES . . . . .		

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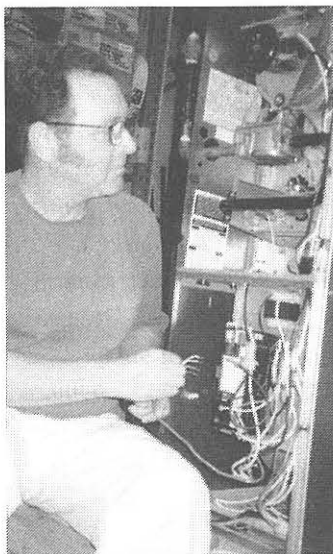
Program Identification Code:  
**AASBLDGCONST**

*This degree provides for nine building and construction options: building management, construction technology, carpentry, facilities maintenance, heating, ventilation, air conditioning, and refrigeration (HVAC-R), electrical, plumbing, control systems, and electrical utility distribution.*

#### Suggested Entrance

*Requirements: Entry requirements for the Associate of Applied Science degree are 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.*

## Building and Construction Technologies — Associate of Applied Science Degree for Direct Employment *(continued)*



### Construction Technology

ACC 101	Financial Accounting	3
BCT 101	Principles of Construction	3
BCT 102	Building Materials	3
BCT 120*	Blueprint Reading for Construction	3
BCT 123	Concrete/Masonry	3
BCT 202	Construction Business Management	3
BCT 204*	Construction Surveying	3
BCT 280*	International Building Code (IBC) I	3
BCT 281*	International Building Code (IBC) II	3
CAD 101	Computer Aided Drafting Fundamentals	4

### Technical Electives

Complete 3 credit hours from the following list with the approval of the department chair or faculty advisor BCT, CAD, and DES

### Carpentry

BCT 101	Principles of Construction	3
BCT 102	Building Materials	3
BCT 120*	Blueprint Reading for Construction	3
BCT 123	Concrete/Masonry	3
BCT 145*	Carpentry I	4
BCT 146*	Woodworking	3
BCT 245*	Carpentry II	4
BCT 246*	Carpentry III	4
BCT 286*	International Residential Code (IRC) I	3
BCT 287*	International Residential Code (IRC) II	3

### Facilities Maintenance

BCT 103*	Principles and Concepts for HVAC	4
BCT 104*	Introduction to Equipment Maintenance	4
BCT 106*	Soldering and Brazing for Building and Construction Technologies	4
BCT 124*	Gas Furnace Heating	4
BCT 126*	HVAC Electricity, Circuitry, and Controls	4
BCT 150*	Plumbing Basics	4
BCT 172*	Building and Construction Technologies Electrical I	4
BCT 280*	International Building Code (IBC) I	3
BCT 281*	International Building Code (IBC) II	3

### Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R)

BCT 103*	Principles and Concepts for HVAC	4
BCT 104*	Introduction to Equipment Maintenance	4
BCT 106*	Soldering and Brazing for Building and Construction Technologies	4
BCT 124*	Gas Furnace Heating	4
BCT 126*	HVAC Electricity, Circuitry, and Controls	4
BCT 127*	HVAC Systems Applications	4
BCT 128*	HVAC Systems Service and Repair	4
BCT 172*	Building and Construction Technologies Electrical I	4
BCT 223*	Pneumatic HVAC Controls	3

### Electrical

BCT 135*	National Electrical Code Residential Wiring Applications	4
BCT 172*	Building and Construction Technologies Electrical I	4
BCT 173*	Building and Construction Technologies Electrical II	4
BCT 174*	Building and Construction Technologies Electrical III	4
BCT 235*	National Electric Code Commercial Wiring Applications	4
BCT 271*	Building and Construction Technologies Electrical IV	4
BCT 272*	Building and Construction Technologies Electrical V	4
BCT 273*	Building and Construction Technologies Electrical VI	4
BCT 274*	Building and Construction Technologies Electrical VII	4

## Building and Construction Technologies — Associate of Applied Science Degree for Direct Employment *(continued)*

### Plumbing

BCT 103*	Principles and Concepts for HVAC	4
BCT 104*	Introduction to Equipment Maintenance	4
BCT 106*	Soldering and Brazing for Building and Construction Technologies	4
BCT 124*	Gas Furnace Heating	4
BCT 150*	Plumbing Basics	4
BCT 242*	Cross-Connection Control	3
BCT 283*	International Plumbing Code (IPC)	3

Technical Electives: 8  
Complete 8 credit hours from the following list with the approval of the department chair or faculty advisor BCT, CAD, and DES

### Control Systems

BCT 103*	Principles and Concepts for HVAC	4
BCT 104*	Introduction to Equipment Maintenance	4
BCT 126*	HVAC Electricity, Circuitry, and Controls	3
BCT 135*	National Electric Code Residential Wiring Applications	4
BCT 152*	Programmable Logic Controllers for Energy Management Systems I	4
BCT 172*	Building and Construction Technologies Electrical I	4
BCT 225*	Electrical Distribution and Motor Controls for Buildings	4
BCT 235*	National Electric Code Commercial Wiring Applications	4
BCT 252*	Programmable Logic Controllers for Energy Management Systems II	4

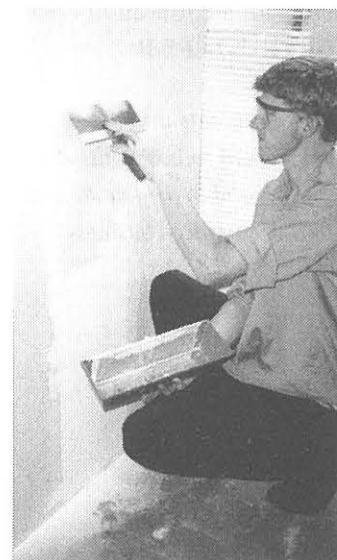
**Total credits as displayed 62-65§**

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

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

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

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



## Business

- Basic Business Certificate For Direct Employment
- Advanced Business Certificate For Direct Employment
- Business — Associate of Applied Science Degree For Direct Employment
- Business Administration — Associate of Business Administration (ABUS) for Transfer

### The Business programs are designed to meet the goals of students:

- interested in exploring business as a career
- desiring appropriate skills to enter the business field
- needing skills to aid in opening a small business
- planning to transfer to a four-year institution as a business major

### The certificate/degrees include:

- A certificate designed to introduce the student to basic business courses
- A certificate for direct employment enabling students to seek job entry level positions in business
- An Associate of Applied Science degree with a specialty in management or marketing for students seeking employment after graduation
- An Associate of Business Administration (ABUS) degree in business administration for students intending to transfer to Arizona State University, Northern Arizona University, the University of Arizona, or the University of Phoenix
- An Associate of Arts degree in retailing for students wishing to transfer to the University of Arizona



## Basic Business — Certificate for Direct Employment

Program Identification Code:  
**CRTBUSINES-B**

*This certificate introduces the student to basic business courses and is the foundation for the advanced business certificate.*

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 . . . . .	3
BUS 151*	Mathematics of Business . . . . .	3
MGT 110	Human Relations in Business and Industry . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>9</b>
<b>Required Support Courses</b>		
ACC 100	Practical Accounting Procedures . . . . .	3
OAP 151* or WRT	Business English Determined by assessment test score . . . . .	3
Electives- Complete 1-3 credit hours from the following list: . . . . .		1-3
ACC, BUS, CIS, CSA, ECN, FIN, IBS, MGT, MKT, RLS		
<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

Program Identification Code:  
**CRTBUSINES-A**

*This certificate enables students to seek job entry positions in business and is the foundation for the Associate of Applied Science Degree in Business.*

<b>General Education Requirements - A grade of C or better is required for graduation.</b>		
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement . . . . .		†
OAP 151 fulfills this requirement.		
See General Education section, page 49		
Analysis and Critical Thinking Requirement . . . . .		3
See General Education section, page 49		
<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>		
BUS 100	Introduction to Business . . . . .	3
BUS 151*	Mathematics of Business . . . . .	3
BUS 220	Legal Environment of Business . . . . .	3
MGT 110	Human Relations in Business and Industry . . . . .	3
<b>Subtotal . . . . .</b>		<b>12</b>
<b>Required Support Courses</b>		
ACC 101	Financial Accounting . . . . .	3
ACC 102*	Managerial Accounting . . . . .	3
CSA 101	Computer Fundamentals . . . . .	3
MGT 280*	Business Organization and Management . . . . .	3
MKT 111	Principles of Marketing . . . . .	3
OAP 151*	Business English . . . . .	3
<b>Subtotal . . . . .</b>		<b>18</b>
<b>Total credits as displayed . . . . .</b>		<b>33</b>

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

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

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	3
OAP 151 may fulfill 3 credits of this requirement. See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	3
ECN 200 fulfills 3 credits of this requirement	
Computer and Information Literacy Requirement . . . . .	†
CSA 101 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.

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

### Required Support Courses

ACC 101	Financial Accounting . . . . .	3
ACC 102*	Managerial Accounting . . . . .	3
CSA 101	Computer Fundamentals . . . . .	3
ECN 200*	Basic Economic Principles . . . . .	3
MGT 280*	Business Organization and Management . . . . .	3
MKT 111	Principles of Marketing . . . . .	3
OAP 151*	Business English . . . . .	3
Electives: Select 6 credits hours from the following list: . . . . .		6
ACC, BUS, CIS, CSA, ECN, FIN, IBS, MGT, MKT, RLS		
<b>Subtotal . . . . .</b>		<b>27</b>

*continued next page*

Program Identification Code:  
**AASBUSINESS**

*This degree provides the skill and knowledge for direct employment in business with specialties in management and marketing. Students seeking to transfer to a university in business administration should follow the Associate of Business (ABUS) Degree.*

## Business — Associate of Applied Science Degree For Direct Employment *(continued)*

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

Select a minimum of 12 credit hours from one option: A, B or C

Department faculty advisor or counselor approval is recommended in the selection of the program option.

### Option A - Management Specialty

MGT 122	Supervision . . . . .	3
MGT 124	Small Business Management . . . . .	3
MGT 270*	Computer Applications for Managers . . . . .	3
MGT 276*	Human Resources . . . . .	3
MGT 278	Labor/Management Relations . . . . .	3

### Option B - Marketing Specialty

MKT 113	Salesmanship . . . . .	3
MKT 125	Advertising . . . . .	3
MKT 139	Retailing . . . . .	3
MKT 150	Physical Distribution Management . . . . .	3
BUS 299WK*	Co-op Related Work in BUS . . . . .	3

### Option C- Tourism Specialty

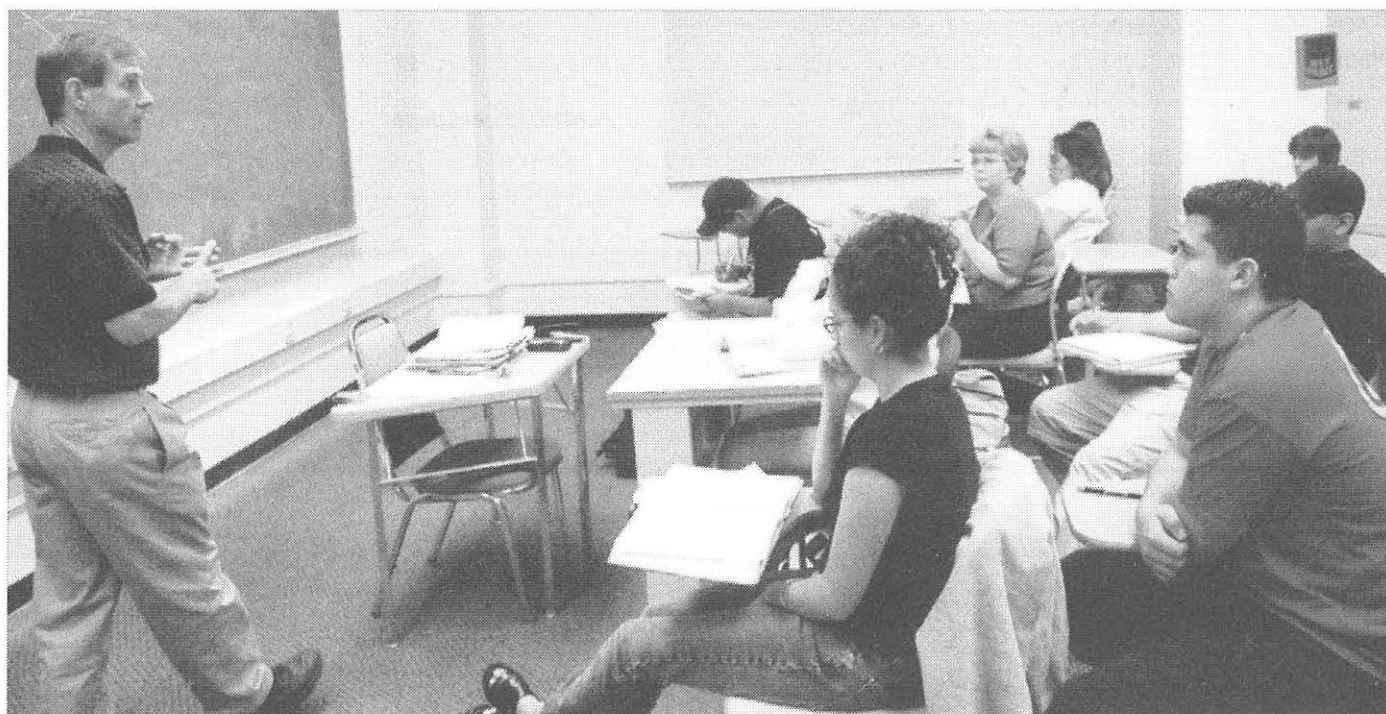
TVL 101	Introduction to the Travel Industry . . . . .	3
TVL 102	Computerized Reservation Systems I . . . . .	3
TVL 103	Geography for Travel Professionals I . . . . .	3
TVL 109	Survey of Leisure Products . . . . .	3
TVL 205*	Tourism Marketing . . . . .	3

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

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

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

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



## Business Administration — Associate of Business Administration (ABUS) for Transfer

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

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

English Composition .....	6
See General Education section, page 50	
Humanities and Fine Arts .....	6
See General Education section, page 50	
Biological and Physical Sciences .....	8
See General Education section, page 50	
Mathematics .....	†
MAT 212 or MAT 174 or higher fulfills this requirement.	
Social and Behavioral Sciences .....	3
ECN 201 or 202 fulfill 3 credits of this requirement.	
Complete one additional non-ECN course from the General Education list.	
Other Requirements .....	†
MAT 151 and either MAT 172 or 173 fulfill this requirement.	
Special Requirements	
The I, C, and G requirements should be fulfilled by courses in the above categories.	
<b>Subtotal .....</b>	<b>23 ¥</b>

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 .....	3
ACC 102*	Managerial Accounting .....	3
BUS 205*	Statistical Methods in Economics and Business .....	3
BUS 220	Legal Environment of Business .....	3
CIS 100*	Introduction to Computers .....	3
ECN 201*†	Microeconomic Principles .....	3
ECN 202*†	Macroeconomic Principles .....	3
MAT 151*	College Algebra .....	4
MAT 151 is not required if the student has tested above MAT 151 or completed a College MAT course numbered higher than 151 with a grade C or better. Only in this case, the credits for MAT 151 may be replaced by any transferable course.		
Math Requirement: .....		6
Please note: NAU and UA recommend the combination of MAT 173 and MAT 174.		
MAT 172*	Finite Mathematics	
and 212*	Topics in Calculus	
or MAT 173*	Mathematics for Business I	
and 174*	Mathematics for Business II	
<b>Subtotal .....</b>		<b>31</b>
Business Electives .....		6
Complete 6 transferable electives. Courses from the following business prefixes are recommended:		
ACC, BUS, CIS, FIN, IBS, MGT, MKT, PAD, and RLS		
<b>Total credits as displayed .....</b>		<b>60</b>

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

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

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

† ECN 200 can be substituted for ECN 201 or 202. ( See an advisor )

Program Identification Code:  
**AOBBUSIADMIN**

*The business administration degree program for transfer prepares students for a university bachelor's degree program in business administration. The options lead to majors in accounting, business administration, business computing management/management information systems, business economics, finance, international business, management, and marketing.*

*This degree fulfills lower-division general education and major requirements for the BS Degree in Business Administration at the University of Arizona, University of Phoenix, Arizona State University, and Northern Arizona University. It may also transfer into business programs at other universities. See your business advisor or counselor.*



## Chemistry — Associate of Science Degree for Transfer

Program Identification Code:  
**AOSSCIENCE**

A student planning on obtaining a chemistry degree should follow the Associate of Science Degree for Transfer. A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a chemistry faculty advisor or counselor to plan courses. The student who plans on transferring to an upper division school to complete his/her degree should also contact an advisor or counselor from their chosen school for verification of transfer courses.

## Computer Aided Drafting

- Basic Computer Aided Drafting Certificate for Direct Employment
- Advanced Computer Aided Drafting Certificate for Direct Employment
- Computer Aided Drafting Technology – Associate of Applied Science Degree

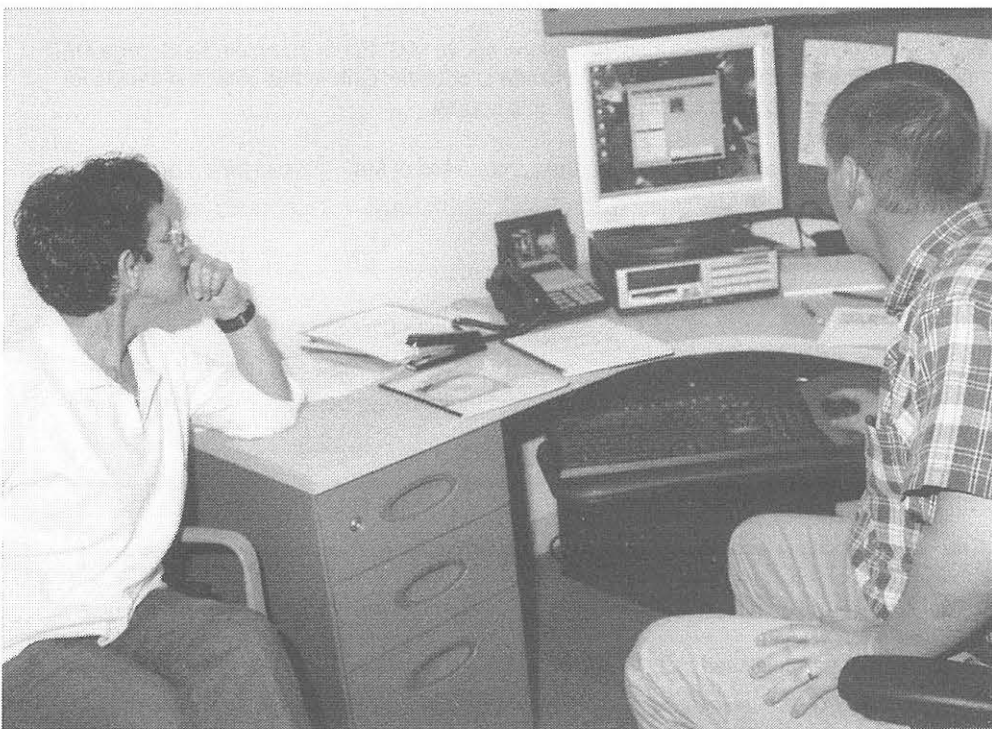
### Basic Computer Aided Drafting — Certificate for Direct Employment

Program Identification Code:  
**CRTCONDRFT-B**

*This certificate provides skills in drafting and design fundamentals used in the manufacturing industry utilizing manual and computer aided drafting (CAD) tools. It also provides a foundation for the Associate of Applied Science Degree in computer Aided Drafting Technology.*

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 Fundamentals	
or CAD 102*	Computer Aided Drafting Fundamentals: Review	4
<b>Required Support Courses</b>		
CAD: Complete 12 credit hours in CAD at the 150 level or higher with the approval of the department chair or faculty advisor.		12
<b>Total credits as displayed</b>		<b>16</b>

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



## Advanced Computer Aided Drafting — Certificate for Direct Employment

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

Communication Requirement . . . . .	3
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49	
<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.

CAD 101	Computer Aided Drafting Fundamentals	
or CAD 102*	Computer Aided Drafting Fundamentals: Review . . . . .	4

### Required Support Courses

CAD: Complete 12 credit hours in CAD at the 150 level or higher with the approval of the department chair or faculty advisor. . . . .	12
Technical Electives . . . . .	8
Complete 8 credit hours at the 100 level or higher from any of the following list with the approval of the department chair or faculty advisor: BCT, CAD, DES, ENG, MAC or WLD courses	
<b>Subtotal . . . . .</b>	<b>24</b>

**Total credits as displayed . . . . . 30**

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

Program Identification Code:  
**CRTCONDRFT-A**

*This certificate provides skills in advanced computer aided drafting (CAD). It also provides a foundation for the Associate of Applied Science Degree in Computer Aided Drafting Technology.*

## Computer Aided Drafting — Associate of Applied Science Degree

Suggested Entrance Requirements: Entry requirements for the Associate of Applied Science degree are REA 081, WRT 100, and MAT 086. Students should have successfully completed course work or assessments within the first year of the program.

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CAD 101 fulfills this requirement.	
<b>Subtotal . . . . .</b>	<b>18</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
CAD 280*	Computer Aided Design and Drafting Portfolio . . . . .	1
<b>Subtotal</b>	<b>.....</b>	<b>5</b>

*continued next page*

Program Identification Code:  
**AASELECMECHN**

*This Associate of Applied Science degree allows the students to develop skills which prepare them for careers in Computer Aided Drafting (CAD) as found in several types of industry. This degree provides the student with a choice of eight options: Mechanical, Electro-Mechanical, Integrated Circuit Layout Design, Residential, Commercial, Civil, Interior, and Landscape. The Mechanical option involves drafting and design fundamentals used in the manufacturing industry. The Electro-Mechanical and Integrated*

## Computer Aided Drafting — Associate of Applied Science Degree *(continued)*

*Circuit options involve drafting and design fundamentals used in the electronics manufacturing industry. The Residential, Commercial, Civil, Interior, and Landscape options involve the preparation of working drawings for construction projects.*

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

Choose one of the following options: . . . . . 37  
Department chair or faculty advisor approval is recommended in the selection of the program option.

#### Mechanical

CAD 152*	Mechanical Design and Drafting I . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
CAD 202*	Mechanical Design and Drafting II . . . . .	4
CAD 252*	Mechanical Design and Drafting III . . . . .	4
MAC 110*	Manual Machine Shop . . . . .	4
Technical Electives . . . . .		18
Complete 18 credits from the following list with the approval of the department chair or faculty advisor: BCT, CAD, DES, ENG, MAC, TEC and WLD		

#### Electro-Mechanical

CAD 114	Electronic Manufacturing Processes . . . . .	3
CAD 152*	Mechanical Design and Drafting I . . . . .	4
CAD 153*	Electro-Mechanical Design and Drafting I . . . . .	4
CAD 202*	Mechanical Design and Drafting II . . . . .	4
CAD 203*	Electro-Mechanical Design and Drafting II . . . . .	4
CAD 253*	Electro-Mechanical Design and Drafting III . . . . .	4
TEC 100	Introduction to Electronics Technology . . . . .	3
Technical Electives . . . . .		11
Complete 11 credits from the following list with the approval of the department chair or faculty advisor: CAD, ENG, MAC and TEC .		

#### Integrated Circuit Layout Design

CAD 104*	Integrated Circuit Layout Fundamentals . . . . .	4
CAD 114	Electronic Manufacturing Processes . . . . .	3
CAD 154*	Integrated Circuit Layout Design I . . . . .	4
CAD 204*	Integrated Circuit Layout Design II . . . . .	4
CAD 254*	Integrated Circuit Layout Design III . . . . .	4
TEC 100	Introduction to Electronics Technology . . . . .	3
TEC 101*	Physics for Technology . . . . .	3
Technical Electives . . . . .		12
Complete 12 credits from the following list with the approval of the department chair or faculty advisor: CAD153*, 203*,and other approved CAD courses, ENG, and TEC 121*,122*,123*.		

#### Residential

BCT 101	Principles of Construction . . . . .	3
BCT 102	Building Materials . . . . .	3
BCT 204*	Construction Surveying . . . . .	3
CAD 155*	Residential Design and Drafting I . . . . .	4
CAD 205*	Residential Design and Drafting II . . . . .	4
CAD 255*	Residential Design and Drafting III . . . . .	4
Technical Electives . . . . .		16
Complete 16 credit hours from the following list with the approval of the department chair or faculty advisor: BCT, CAD, DES, ENG, LTP, MAC, TEC and WLD.		

**Commercial**

BCT 101	Principles of Construction. . . . .	3
BCT 102	Building Materials. . . . .	3
BCT 204*	Construction Surveying . . . . .	3
CAD 156*	Commercial Design and Drafting I. . . . .	4
CAD 206*	Commercial Design and Drafting II. . . . .	4
CAD 256*	Commercial Design and Drafting III. . . . .	4

Technical Electives . . . . . 16

Complete 16 credit hours from the following list with the approval of the department chair or faculty advisor:

BCT, CAD, DES, ENG, LTP, MAC, TEC and WLD.

**Civil**

BCT 101	Principles of Construction. . . . .	3
BCT 102	Building Materials. . . . .	3
BCT 204*	Construction Surveying . . . . .	3
CAD 157*	Civil Design and Drafting I. . . . .	4
CAD 207*	Civil Design and Drafting II. . . . .	4
CAD 257*	Civil Design and Drafting III. . . . .	4

Technical Electives . . . . . 16

Complete 16 credit hours from the following list with the approval of the department chair or faculty advisor:

BCT, CAD, DES, ENG, LTP, MAC, TEC and WLD.

**Interior Design Computer Aided Drafting**

BCT 101	Principles of Construction. . . . .	3
BCT 102	Building Materials. . . . .	3
CAD 158*	Interior Design and Drafting I. . . . .	4
CAD 208*	Interior Design and Drafting II. . . . .	4
CAD 258*	Interior Design and Drafting III. . . . .	4

Interior Design Elective: . . . . . 3

Select any DES course at the 100 level or above with the approval of the department chair or faculty advisor

Technical Electives . . . . . 16

Complete 16 credit hours from the following list with the approval of the department chair or faculty advisor:

BCT, CAD, DES, ENG, and LTP.

**Landscape Design Computer Aided Drafting**

BCT 101	Principles of Construction. . . . .	3
BCT 102	Building Materials. . . . .	3
BCT 204*	Construction Surveying . . . . .	3
CAD 159*	Landscape Design and Drafting I. . . . .	4
CAD 209*	Landscape Design and Drafting II. . . . .	4
CAD 259*	Landscape Design and Drafting III. . . . .	4

Technical Electives . . . . . 16

Complete 16 credit hours from the following list with the approval of the department chair or faculty advisor:

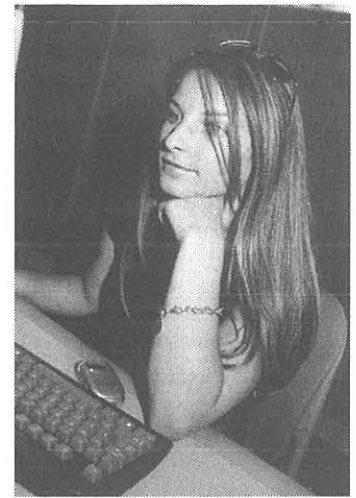
BCT, CAD, DES, and LTP.

**Total credits as displayed . . . . . 60§**

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

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

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





# Computer Information Systems

- Computer Programmer Specialist Certificate for Direct Employment
- Computer Programmer/Analyst – Associate of Applied Science Degree for Direct Employment
- System Administration/Networking – Certificate for Direct Employment
- System Administration/Networking – Associate of Applied Science for Direct Employment
- Computer Related Degrees for Transfer

These programs are designed to prepare students for employment in the computer field as programmers, network administrators, systems administrators and database administrators, as well as provide transfer courses for those wishing to enroll at a four-year college. In addition, they enable those already employed in the field to upgrade their skills and provide personal interest courses to meet the community's needs. The program options provide a full range of computer science skills, including computer literacy, programming, computer operations, networking, database management and systems analysis and design. For data entry see the Administrative and Office Support Careers program.

## Computer Programmer Specialist — Certificate for Direct Employment

You can complete and receive one (1), two (2), or all three (3) certificates by completing the required courses. This program offers an accelerated programming study for those who have completed one or more years of college that include the program prerequisites. In addition, it enables experienced professionals to upgrade and expand their skills and employment opportunities. Experienced students will be given the opportunity to test out of CIS 100 or request waiver of prerequisites by the Computer Science Department. Students may seek certificates in each of the programming options listed below.

The Programming for the Web concentration offers an accelerated programming study of entry level World Wide Web design, development and web site administration for those who have completed one or more years of college that include the program prerequisites. Within the field of web site publishing it also enables experienced professionals to upgrade their programming skills and expand employment opportunities.

IMPORTANT: Before enrolling in this program students should consult a computer science faculty advisor.

Prerequisites for Programming in C are CIS 129, 131, and 250.

Prerequisite for Programming in Visual Basic is CIS 129. CSA 101 is recommended.

Prerequisites for Programming for the Web are CIS 100, 119.

Major Code: **CSP**

Program Code:

**CRTCMPRGSP**

Concentration Code:

**see options**

Choose one of the following concentrations:

Department chair or faculty advisor approval is recommended in the selection of the program option.

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

Choose one of the following concentrations (options): . . . . . 15-26

#### Programming in C — CONCENTRATION CODE: CSPC

CIS 265*	The C Programming Language . . . . .	4
CIS 269*	Data Structures . . . . .	5
CIS 278*	C++ and Object-Oriented Programming . . . . .	5
CIS 279*	Java Programming . . . . .	5

#### Programming in Visual Basic — CONCENTRATION CODE: CSPV

CIS 139*	Beginning Visual Basic Programming	
or CIS 141*	Introduction to VB.NET . . . . .	4
CIS 161*	Database Design and Development . . . . .	4
CIS 239*	Advanced Programming in Visual Basic	
or CIS 241*	Advanced Visual Basic.NET Programming . . . . .	4
CIS Department Elective (for this concentration only) . . . . .		3-5

Complete CSA 101 or any CIS course 129 or higher including prerequisite courses.

#### Programming for the Web — CONCENTRATION CODE: CSPW

BUS 125	Business on the Internet. . . . .	3
CIS 121*	Web Publishing . . . . .	3
CIS 265*	The C Programming Language . . . . .	4
CIS 266*	CGI Programming with PERL . . . . .	3
CIS 273*	Advanced Web Page Development. . . . .	4
CIS 279*	Java Programming . . . . .	5
DAR 112*	Graphic Design I . . . . .	4

**Total credits as displayed . . . . . 15-26**

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

## Computer Programmer/Analyst — Associate of Applied Science Degree for Direct Employment

This program is designed to prepare the student for employment as an entry level programmer or programmer/analyst. The degree program concentrates on the tools necessary for the design and development of programs or applications. Major areas of concentration include problem solving, system analysis, program design/development all emphasizing structured programming concepts. Competence in logical thinking, college algebra, and communication (written and verbal) are essential for successful completion of this degree program. This program transfers to the Bachelor of Applied Science Computer Technology Degree at Northern Arizona University, which can be completed entirely in Tucson.

IMPORTANT: Before enrolling in this program students should consult a computer science faculty advisor.

Prerequisites are CIS 129 and computer literacy.

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

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

Communication Requirement

WRT 101 and WRT 102 satisfy this requirement. . . . . †

Analysis and Critical Thinking Requirement

MAT 172 and a lab science course satisfy this requirement

Humanities and Social Science Requirement . . . . . 3

ECN 201 satisfies part of this requirement

Select a course from the General Education list in Humanities that fulfills the cultural diversity (C) or the global awareness (G) requirement.

Computer and Information Literacy Requirement

Satisfied by core courses.

**Subtotal . . . . . 3**

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

CIS 131*	Programming and Problem Solving II. . . . .	5
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CIS 139*	Beginning Visual Basic Programming	
or CIS 141*	Introduction to VB.NET . . . . .	4

CIS 162*	Database Design and Development . . . . .	4
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CIS 187*	Data Processing Projects I	
or CIS 287*	Data Processing Projects II . . . . .	1-3

CIS 250*	Introduction to Assembly Language . . . . .	3
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CIS 265*	The C Programming Language . . . . .	4
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CIS 269*	Data Structures . . . . .	5
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CIS 278*	C++ and Object Oriented Programming	
or CIS 279*	Java Programming . . . . .	5

CIS 280*	Systems Analysis and Design: Concepts and Tools . . . . .	5
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CIS 281*	Systems Analysis and Design: Applications . . . . .	2
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**Subtotal . . . . . 38-40**

### Required Support Courses

ACC 101	Financial Accounting . . . . .	3
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ECN 201*	Microeconomic Principles . . . . .	3
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MAT 172*	Finite Mathematics . . . . .	3
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WRT 101*	Writing I. . . . .	3
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WRT 102*	Writing II . . . . .	3
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Laboratory Science: Select one course from the following list: . . . . .		4
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AST 101/101LB/IN, 102/102LB, BIO 100IN, 105IN, 181IN, GEO 102IN, GLG 101IN, GLG 102IN

**Subtotal . . . . . 19**

CIS Elective: Select a course below for 3 credit hours . . . . .		3
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CIS 199, 220, 221, 225, 239, 266, 299

**Total credits as displayed . . . . . 63-65§**

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

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

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

Program Identification Code:

**AASCMPPRGANL**

Major Code: **CSP**

Program Code:

**AASCMPPRGANL**

Concentration Code: **CSPA**

## Systems Administration/Networking — Certificate for Direct Employment

You can complete and receive certificates for one (1), two (2), three (3), or all four (4) certificates by completing the required courses.

The Systems Administration/Networking - CISCO concentration consists of four (4) courses based on the CISCO Local Networking Academy official curriculum, which is used throughout the program. Networking Fundamentals, networking router technologies, advanced routing and switching, LAN, WAN, and advanced WAN technologies are covered, and the program is designed to prepare the student for the CCNA (CISCO Certified Network Administrator) exam.

The Systems Administration/Networking - Linux concentration will enhance the students understanding of UNIX/Linux networking and administration. The program covers beginning and advanced Linux concepts of administration and the UNIX operating system, utilities, file structure, documentation and networking techniques. The program is a foundation for those students who are working toward industry certification.

The Systems Administration/Networking - Microsoft concentration is designed to aid students who are preparing for Microsoft certifications and, while not an official Microsoft curriculum, the subject covered help prepare the student for core and elective certification exams. The subjects covered include Windows XP Professional Administration, Microsoft Windows Server Administration, Windows Directory Services, and Network Security. The program provides a good foundation in Networking in a Windows environment.

The Systems Administration/Networking - Administrator concentration is designed to provide a well rounded exposure to network administration, and introduce the student to LAN's, WAN's, network topography, network architecture, Windows servers, Novell servers, Linux operating systems and general networking principles. The program will provide a good foundation for those who are preparing for the Network + certification and aid those interested in upgrading their networking skills.

Major Code: **CSN**

Program Code:

**CRTNETWRKADM**

CONCENTRATION CODE:

**see concentrations**

Choose one of the following concentrations (options):

Department chair or faculty advisor approval is recommended in the selection of the program concentration.

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

Choose one of the following concentrations (options): ..... 17-20

### Systems Administration/Networking - CISCO — Concentration Code: CSNC

CIS 170*	CISCO I Networking Fundamentals .....	5
CIS 171*	CISCO II Networking Routing Fundamentals .....	5
CIS 172*	CISCO III Advanced Routing and Switching .....	5
CIS 173*	CISCO IV Project Based Learning .....	5

### Systems Administration/Networking - Linux — Concentration Code: CSNX

CIS 136*	Microcomputer Components	
or TEC 130/LB*	Computer Assembly and Testing .....	3-4
CIS 119*	Network Essentials	
or CIS 170*	Cisco I: Networking Fundamentals .....	3-5
CIS 137*	Introduction to Unix Operating System .....	3
CIS 225*	Linux (UNIX) System and Network Administration .....	4
CIS 226*	Advanced Linux Networking .....	4

### Systems Administration/Networking - Microsoft — Concentration Code: CSNM

CIS 103*	Windows XP Professional .....	4
CIS 221*	Microsoft Windows Server .....	4
CIS 222*	Implementing Windows Network Infrastructure .....	4
CIS 223*	Implementing Windows Directory Services .....	4
CIS 224*	Designing Windows Network Security .....	4

### Systems Administration/Networking - Administrator — Concentration Code: CSNA

CIS 103*	Microsoft Windows XP Professional Administration .....	4
CIS 119*	Network Essentials .....	3
CIS 220*	Novell NetWare Networking and Administration .....	4
CIS 221*	Microsoft Windows Server .....	4
CIS 225*	LINUX (UNIX) System and Network Administration .....	4

**Total credits as displayed ..... 17-20**

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

## Systems Administration/Networking — Associate of Applied Science Degree for Direct Employment

You can complete and receive degrees for one or both of these options by completing the required courses in the core, support in concentration sections.

The Systems Administration/Networking - Small Computer Systems Administrator concentration is designed to prepare students for employment in the microcomputer field. Students are trained to select, install, configure and administer most small computer systems.

The Systems Administration/Networking Administrator concentration covers all the most popular networking technologies: CISCO networking; Microsoft systems administration; Linux networking; Novell networking and general networking principles. The program covers a wide range of network administration including server installation and administration, security, directory services, local and wide area networking, network installation, network troubleshooting, network topologies and architecture, and is designed to prepare the student for entry into this exciting and expanding area of technology. In addition, this program will help prepare the student to take nationally recognized certification exams like "Microsoft Systems Administrator", "Cisco Certified Network Administrator", "Network +", and "Server +", and be a foundation for other more advanced certifications.

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section page 49	
Analysis and Critical Thinking Requirement	
Satisfied by Support Courses MAT 122 and PHI 120	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement	
Satisfied by core courses.	
<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.

CIS 103*	Microsoft Windows XP Professional Administration . . . . .	4
CIS 119*	Network Essentials	
or CIS 170*	Cisco I: Networking Fundamentals . . . . .	3-5
CIS 136*	Microcomputer Components	
or TEC 130/LB*	Computer Assembly and Testing . . . . .	3-4
CIS 137*	Introduction to the UNIX Operating System . . . . .	3
CIS 220*	Novell NetWare Networking and Administration . . . . .	4
CIS 221*	Microsoft Windows Server . . . . .	4
CIS 225*	Linux (UNIX) System and Network Administration . . . . .	4
<b>Subtotal . . . . .</b>		<b>24-28</b>

### Required Support Courses

MAT 122	Intermediate Algebra . . . . .	3
MGT 124	Small Business Management . . . . .	3
PHI 120	Introduction to Logic . . . . .	3
<b>Subtotal . . . . .</b>		<b>9</b>

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

Department chair or faculty advisor approval is recommended in the selection of the program concentration.

*continued next page*

Major Code: **CSN**

Program Code:

**AASCOMPYSAD**

Concentration Code:

**see concentrations**



## Systems Administration/Networking — Associate of Applied Science Degree for Direct Employment *(continued)*



### Systems Administration/Networking - Small Computer Systems Administrator — CONCENTRATION CODE: CSNS

Course Number	Course Title	Credit Hours
CIS 129* or CIS 231*	Programming and Problem Solving I Programming Fundamentals . . . . .	4-5
CIS 162*	Database Design and Development . . . . .	4
CIS 187*	Data Processing Projects I . . . . .	1-3
CIS 280*	Systems Analysis and Design: Concepts and Tools . . . . .	5
CIS 281*	Systems Analysis and Design: Applications . . . . .	2
Elective:	. . . . .	6-10
Complete 6-10 credits from the following courses ACC 101, 102, CIS 139, 199, 239, 250, 265, 269, 278, 279, 299		
<b>Option Subtotal</b> . . . . .		<b>23 - 30</b>

### Systems Administration/Networking - Administrator — Concentration Code: CSNA

CIS 170*	CISCO I Networking Fundamentals . . . . .	5
CIS 171*	CISCO II Networking Routing Fundamentals . . . . .	5
CIS 172*	CISCO III Advanced Routing and Switching . . . . .	5
CIS 173*	CISCO IV Project Based Learning . . . . .	5
CIS 222*	Implementing Windows Network Infrastructure . . . . .	4
CIS 223*	Implementing Windows Directory Services . . . . .	4
CIS 224*	Designing Windows Network Security . . . . .	4
CIS 226*	Advanced Linux Networking . . . . .	4
<b>Option Subtotal</b> . . . . .		<b>36</b>
<b>Total credits as displayed</b> . . . . .		<b>68 - 82§</b>

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

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

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

## Computer Related Degrees for Transfer

This program is designed to meet the requirements for the first two years of a Bachelor's degree in Computer Science. Although it is not intended for direct employment, the Associate of Science degree provides a sufficient fundamental knowledge of mathematics, general education, and computer science to obtain entry-level positions by some employers.

Students interested in transferring to a Bachelor's Degree program in computer related fields have the following options:

1. Complete the PCC Associate of Science Degree for Transfer if planning to transfer to the University of Arizona into the BS in Computer Science and complete the CIS courses found on the UA Transfer Guide for Computer Science.
2. Complete the PCC Computer Programmer/Analyst Associate of Applied Science Degree to fulfill the requirements of the first 2 years of the Bachelor's of Applied Science Degree in Computer Information Systems from Northern Arizona University. This four year degree program can be completed in Tucson.
3. Complete the PCC Business Administration--Associate of Business Administration (ABUS) for Transfer Degree in order to transfer into the Management Information Systems Bachelor's Degree program in the Eller College of Business Administration at the University of Arizona or to transfer into the Computer Information Systems Bachelor's Degree program in the college of Business at Arizona State University.

# Computer Software Applications

- Computer Software Applications for Office Professionals – Certificate for Direct Employment

## Computer Software Applications for Office Professionals — Certificate for Direct Employment

This certificate trains students in the skills required for positions in business emphasizing computer applications.

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 .....	3
CSA 101	Computer Fundamentals .....	3
CSA 141*	Integrated Office Suite .....	4
CSA 182	Microsoft Windows: Current Version. ....	3
<b>Subtotal</b> .....		<b>13</b>
Business Electives .....		
Complete two courses (6-7 credits) from the following list with the approval of the department chair or faculty advisor.		
ACC 100	Practical Accounting Procedures. ....	3
OAP 171*	Office Procedures. ....	4
BUS 148	Ethics in the Workplace .....	3
MGT 130*	Improving Service Quality .....	3
<b>Total credits as displayed</b> .....		<b>19-20</b>

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

Program Identification Code:  
**CRTCSAPROFES**

*The Computer Software for Office Professionals program is designed to provide skills and comfort level in running and managing software applications combined with a background in business. The program currently offers a certificate with a business core and computer applications core. Courses and advising are available at the Downtown Campus, East Campus, and Desert Vista Campus.*



## Creative Writing

- Creative Writing — Emphasis for Transfer

The English department offers a full range of courses from the developmental level to those available for university transfer credit. In particular, this area includes a variety of classes designed for students interested in a course of study that focuses on creative writing. Through the **Associate of Arts Degree for Transfer in Liberal Arts**, students can transfer to a four year institution.

A student planning on obtaining a degree with a major in Creative Writing and transferring to ASU, NAU or UA should:

Use Program ID Code  
for Liberal Arts:  
**AOALIBRALART**

### Complete the following Creative Writing courses:

WRT 205*	Introduction to Poetry Writing . . . . .	3
WRT 206*	Short Story Writing . . . . .	3
WRT 207*	Sophomore Composition . . . . .	3
WRT 215*	Advanced Poetry Writing . . . . .	3
WRT 216*	Advanced Fiction Writing . . . . .	3
WRT 217*	Creative Nonfiction . . . . .	3

### In addition, the following courses are available as electives for this major:

WRT 226*	Special Projects in Fiction . . . . .	3
WRT 285	Pima Writers' Workshop . . . . .	2
DAR 224*	Advanced Screenwriting . . . . .	3

### Complete the Associate of Arts Degree for Transfer in Liberal Arts:

Use the AA Degree for Transfer in Liberal Arts display in this catalog as a guide.

Specifically:

Complete the Arizona General Education Curriculum (AGEC-A)

See a Writing/English faculty advisor to complete a program of study form using the Transfer Guide for ASU, NAU or UA. Students transferring to other institutions should consult the specific requirements of the institution to which they plan to attend.

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

## Culinary Arts

- Culinary Arts — Associate of Applied Science Degree for Direct Employment
- Culinary Arts — Certificate for Direct Employment

### Culinary Arts Certificate for Direct Employment

Program Identification Code:  
**CRTCULNRYART**

*This certificate program prepares students for direct employment in hotels, restaurants, and resorts. It includes coursework in Hot Foods, Garde Manger, and Cakery, as well as Nutrition, Stewarding, Dining Room Operations, and Menu Planning.*

*Entrance requirements for the Culinary Arts certificate are achieved through an inter process by a Culinary Arts faculty member.*

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 . . . . .	3
CUL 110	Food Service Nutrition . . . . .	2
CUL 115	Food Service Sanitation and Safety . . . . .	3
CUL 130	Hot Foods I . . . . .	3
CUL 140	Culinary Principles I . . . . .	3
CUL 150	Garde Manger I . . . . .	3
CUL 160	Bakery and Pastry Production I . . . . .	3
CUL 230*	Hot Foods II . . . . .	3
CUL 250*	Garde Manger II . . . . .	3
CUL 260*	Bakery and Pastry Production II . . . . .	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

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 49	
<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.....	3
CUL 110	Food Service Nutrition .....	2
CUL 115	Food Service Sanitation and Safety .....	3
CUL 130	Hot Foods I .....	3
CUL 140	Culinary Principles I .....	3
CUL 150	Garde Manger I .....	3
CUL 160	Bakery and Pastry Production I .....	3
CUL 180	Food In History .....	3
CUL 185	Catering Operations I .....	2
CUL 230*	Hot Foods II .....	3
CUL 240*	Culinary Principles II.....	2
CUL 250*	Garde Manger II .....	3
CUL 260*	Bakery and Pastry Production II.....	3
<b>Subtotal</b> .....		<b>36</b>

### Required Support Courses

Select three courses from the following list to total nine credits:

ACC 100	Practical Accounting Procedures . . . . .	3
CUL 161	Cake Decorating and Candy Making . . . . .	3
CUL 199*	Co-op Related Class in CUL . . . . .	1
CUL 199WK*	Co-op Work in Culinary. . . . .	1-6**
CUL 261*	Advanced Cake Decorating and Candy Making . . . . .	3
HRM 104	Hotel Food and Beverage Management . . . . .	3
HRM 211*	Hospitality Sales and Marketing Application I . . . . .	3
HRM 235*	Hospitality Law . . . . .	3
HRM 245*	Hospitality Human Resource Management . . . . .	3
<b>Subtotal . . . . .</b>	<b>9</b>	

**Total credits as displayed . . . . . 64-66§**

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

\*\*Department Chair approval of work experience needed

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

Program Identification Code:  
**AASCULNRYART**

*This program prepares students for direct employment in hotels, restaurants, and resorts. Culinary management, budgeting, and hands-on experience in the preparation of food are emphasized.*

*Entry requirements for the Associate of Applied Science Degree are achieved through an inter process by a Culinary Arts faculty member.*



# Dental Assisting Education

- Dental Assisting Education Certificate For Direct Employment

Admission to the Dental Assisting Education program requires a separate application procedure. Students are encouraged to meet with an advisor or counselor.

Students seeking admission to the Dental Assisting Education program must be in the process of completing the following basic requirements before receiving an application:

## Program Prerequisites

- High School diploma or GED
- Admission to Pima Community College
- Completion of the COMPASS assessments (Math, Reading, Writing)
- One semester of high school or college biology or zoology

## Program Co-requisite

- WRT 150 with a grade of C or better within the first two semesters of the program. As an exception, WRT 101 may meet this requirement for students choosing to transfer.

## General Requirements

- Total required credits: 29 credit hours
- DAE course work: 29 credit hours

## Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program department chairperson.

## Minimal Grade Achievement

- Students must receive a C grade or better in all core courses to progress to the next semester.

## Dental Assisting Education — Certificate for Direct Employment

*The Dental Assisting Education program provides theoretical and practical preparation for its program graduates. Graduates of the Dental Assisting Education program may seek immediate employment as qualified dental assistants in hospitals, clinics and dental offices.*

*The total program may be completed within two semesters. A minimum of 336 hours of clinical procedures in affiliated dental clinics and/or private dental offices will be completed during the second semester of study. Students who complete this program will graduate with a certificate for direct employment from Pima Community College and will be eligible to take the national certification examination and state oral radiography licensure examination.*

Students in this program should enroll in DAE 159 during the first semester of the program.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
DAE 159*	Introduction to Health Care for Dental Assisting . . . . .	2
DAE 160*	Orientation to Dental Care . . . . .	1
DAE 161*	Biomedical Dental Science . . . . .	3
DAE 162/162LB*	Dental Assisting I . . . . .	3
DAE 163/163LB*	Oral Radiography . . . . .	3
DAE 164/164LB*	Dental Materials . . . . .	3
DAE 165/165LB*	Pre-Clinical Procedures . . . . .	2
DAE 166*	Dental Assisting II . . . . .	3
DAE 167*	Dental Assisting III . . . . .	3
DAE 190LB*	Clinical Procedures. . . . .	6
<b>Total credits as displayed . . . . .</b>		<b>29</b>

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

# Dental Hygiene

- Dental Hygiene — Associate of Applied Science Degree for Direct Employment

Admission to the Dental Hygiene program requires a separate application procedure. Students are encouraged to meet with an advisor or counselor.

Students seeking admission to the Dental Hygiene program must have either completed or be currently enrolled during the fall semester in the following basic requirements before receiving an application:

## Program Prerequisites

- High School diploma or GED
- Admission to Pima Community College
- Reading assessment test score at the level of, or completion of REA 112
- Math assessment test at the level of MAT 151 or higher, or completion of MAT 122

(Please note: a combined average grade of "B" or better is required for the following courses)

- BIO 201IN within the last 8 years
- BIO 202IN within the last 8 years
- BIO 205IN within the last 8 years
- CHM 140/140LB/140IN within the last 8 years

## General Requirements

- Total required credits: 60-63 credit hours
- DHE course work: 46 credit hours
- Other course work including General Education courses: 14-17 credit hours

## Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program department chairperson.

## Minimal Grade Achievement

- Students must receive a C grade or better in all core courses to progress to the next semester.

## Dental Hygiene — Associate of Applied Science Degree for Direct Employment

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

Reading Requirement	
Satisfied by program prerequisites	
Communication Requirement . . . . .	†
WRT 101 and WRT 102 fulfill this requirement . . . . .	
Analysis and Critical Thinking Requirement . . . . .	†
Satisfied by program prerequisites.	
Humanities and Social Science Requirement . . . . .	3
SOC101 fulfills 3 credits of this requirement . . . . .	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
DHE 209/209LB fulfills this requirement.	
<b>Subtotal . . . . .</b>	<b>3</b>

*continued next page*

*This curriculum provides the theoretical and practical preparation to qualify graduates for positions in general and specialty dental offices, hospitals, schools, and public health agencies. The program consists of four semesters on campus with one summer session. The program is accredited by the Commission on Dental Accreditation, a specialized accrediting body recognized by the Council of Post-secondary Accreditation and the United States Department of Education. Graduates of the Dental Hygiene program will receive an Associate of Applied Science Degree and will be eligible for licensure in Arizona and other jurisdictions.*

## Dental Hygiene — Associate of Applied Science Degree for Direct Employment *(continued)*



Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
DHE 101/101LB*	Pre-Clinical Dental Hygiene . . . . .	4
DHE 104/104LB*	Dental And Oral Morphology . . . . .	3
DHE 107*	Oral Embryology And Histology . . . . .	2
DHE 116/116LB*	Oral Radiography . . . . .	3
DHE 119*	Periodontology . . . . .	1
DHE 120*	Oral Pathology . . . . .	2
DHE 121*	Nutrition and Preventive Dentistry . . . . .	3
DHE 190/190LB*	Clinical Dental Hygiene I . . . . .	4
DHE 191/191LB*	Clinical Dental Hygiene II . . . . .	3
DHE 204/204LB*	Dental Materials . . . . .	3
DHE 207*	Pharmacology . . . . .	3
DHE 208LB*	Pain and Anxiety Control for Dental Hygiene . . . . .	1
DHE 209/209LB*	Computers And Practice Management . . . . .	2
DHE 213/213LB*	Advanced Periodontal Services . . . . .	2
DHE 216*	Community and Dental Health Education . . . . .	3
DHE 290/290LB*	Clinical Dental Hygiene III . . . . .	5
DHE 291/291LB*	Clinical Dental Hygiene IV . . . . .	4
<b>Subtotal . . . . .</b>		<b>48</b>
<b>Required Support Courses</b>		
PSY 100A or PSY 101*	Psychology I Introduction to Psychology . . . . .	3-4
SOC 101	Introduction to Sociology . . . . .	3
SPE 102	Introduction to Oral Communication . . . . .	3
WRT 101	Writing I . . . . .	3
WRT 102	Writing II . . . . .	3
<b>Subtotal . . . . .</b>		<b>15-16</b>
<b>Total credits as displayed . . . . .</b>		<b>66-67§</b>

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

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

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

# Dental Laboratory Technology

- Dental Laboratory Technology — Associate of Applied Science Degree for Direct Employment
- Complete Dentures Technologist — Certificate for Direct Employment
- Dental Ceramics Technologist — Certificate for Direct Employment
- Fixed Bridgework Technologist — Certificate for Direct Employment
- Partial Dentures Technologist — Certificate for Direct Employment

Admission to the Dental Laboratory Technology program requires a separate application procedure. Students are encouraged to meet with an advisor or counselor.

Students seeking admission to the Dental Laboratory Technology program must be in the process of completing the following basic requirements before receiving an application:

## Program Prerequisites

- High School diploma or GED
- Admission to Pima Community College
- Completion of the Math and Reading assessment tests
- Completion and evaluation of GATB (General Aptitude Test - Battery)

## General Requirements

- Total required credits: 69-71 credit hours
- DLT course work: 47 credit hours
- Other course work including General Education courses: 22-24 credit hours

## Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program coordinator.
- Applicants must demonstrate reading competency at the level of REA 112 (12 grade level) or higher to qualify for graduation from the DLT program.

## Minimal Grade Achievement

- Students must receive a C grade or better in all core courses to progress to the next semester.





## Dental Laboratory Technology — Associate of Applied Science Degree for Direct Employment

*The total program is made up of four semesters of classes. It includes 1,492 clock hours of laboratory practice. Graduates will receive an Associate of Applied Science degree with a major in dental laboratory technology. Graduates of the Dental Laboratory Technology program qualify to take the National Board for Certification in Dental Laboratory Technology's Recognized Graduate Exam. After two years of practical work experience, the recognized graduate can qualify to take the Certified Dental Technician practical exam given by the National Board for Certification in Dental Laboratory Technology.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101 and WRT 102 fulfill this requirement	
Analysis and Critical Thinking Requirement . . . . .	1 - 3
CHM 130/130LB/IN fulfill 5 credits of this requirement.	
See General Education section page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>8</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 . . . . .	3
DLT 102*	Nonmetallic Dental Materials . . . . .	3
DLT 103/103LB*	Complete Dentures. . . . .	4
DLT 104/104LB*	Dental Laboratory I . . . . .	4
DLT 105/105LB*	Partial Denture Construction. . . . .	4
DLT 106/106LB*	Orthodontics and Maxillofacial Construction . . . . .	3
DLT 108*	Laboratory Management . . . . .	3
DLT 201/201LB*	Dental Laboratory II . . . . .	3
DLT 202*	Dental Metallurgy I . . . . .	3
DLT 203/203LB*	Fixed Bridgework . . . . .	4
DLT 204/204LB*	Dental Laboratory III . . . . .	3
DLT 206/206LB*	Dental Ceramics . . . . .	4
DLT 207/207LB*	Advanced Dental Laboratory Technology . . . . .	6
<b>Subtotal . . . . .</b>		<b>47</b>

### Required Support Course

CHM 130/130LB/IN	Fundamental Chemistry . . . . .	5
MGT 110	Human Relations in Business and Industry . . . . .	3
MGT 124	Small Business Management . . . . .	3
PHY 101/101LB*	Technical Physics I . . . . .	3
WRT 101*	Writing I . . . . .	3
WRT 102*	Writing II . . . . .	3
<b>Subtotal . . . . .</b>		<b>20</b>

**Total credits as displayed . . . . . 75-79§**

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

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

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

## Complete Dentures Technologist — Certificate for Direct Employment

**IMPORTANT:** Before entering this program students should consult with the dental laboratory technology faculty advisor. Courses taken as a part of a DLT certificate can also be applied to the Dental Laboratory Technology Associate of Applied Science degree.

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**	3
DLT 102*	Nonmetallic Dental Materials	3
DLT 103/103LB*	Complete Dentures.	4
DLT 108*	Laboratory Management**	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.

*This program offers accelerated study for students wishing to rapidly enter a dental laboratory industry. Students in DLT certificate programs are encouraged to complete additional DLT certificates in order to gain a more complete understanding of the industry. In addition, this program enables persons working in the industry to expand their skills and employment opportunities.*

## Dental Ceramics Technologist — Certificate for Direct Employment

**IMPORTANT:** Before entering this program students should consult with a dental laboratory technology faculty advisor. Students seeking admission into the DLT Certificate in Dental Ceramics will need to have completed the Certificate in Fixed Bridgework or be able to demonstrate a sound understanding of the skills covered in that certificate program. Courses taken as a part of a DLT certificate can also be applied to the Dental Laboratory Technology Associate of Applied Science degree.

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**	3
DLT 108*	Laboratory Management**	3
DLT 204/204LB*	Dental Laboratory III	3
DLT 206/206LB*	Dental Ceramics	4
DLT 207/207LB *	Advanced Dental Laboratory Technology	6
<b>Total credits as displayed</b>		<b>19</b>

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

\*\*Please note that DLT 101/101 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

*This program offers accelerated study for students wishing to rapidly enter the dental laboratory industry. Students in DLT certificate programs are encouraged to complete additional DLT certificates in order to gain a more complete understanding of the industry. In addition, this program enables persons working in the industry to expand their skills and employment opportunities.*

## Fixed Bridgework Techologist — Certificate for Direct Employment

*This program offers accelerated study for students wishing to rapidly enter the dental laboratory industry. Students in DLT certificate programs are encouraged to complete additional DLT certificates in order to gain a more complete understanding of the industry. In addition, this program enables persons working in the industry to expand their skills and employment opportunities.*

**IMPORTANT:** Before entering this program students should consult with a dental laboratory technology faculty advisor. Courses taken as a part of a DLT certificate can also be applied to the Dental Laboratory Technology Associate of Applied Science degree.

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**	3
DLT 108*	Laboratory Management**	3
DLT 201/201LB*	Dental Laboratory II	3
DLT 202*	Dental Metallurgy I	3
DLT 203/203LB*	Fixed Bridgework	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 Techologist — Certificate for Direct Employment

*This program offers accelerated study for students wishing to rapidly enter the dental laboratory industry. Students in DLT certificate programs are encouraged to complete additional DLT certificates in order to gain a more complete understanding of the industry. In addition, this program enables persons working in the industry to expand their skills and employment opportunities.*

**IMPORTANT:** Before entering this program students should consult with a dental laboratory technology faculty advisor. Courses taken as a part of a DLT certificate can also be applied to the Dental Laboratory Technology Associate of Applied Science degree.

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**	3
DLT 104/104LB*	Dental Laboratory 1**	4
DLT 105/105LB*	Partial Denture Construction	4
DLT 106/106LB*	Orthodontics and Maxillofacial Construction	3
DLT 108*	Laboratory Management**	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 101/101 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

# Digital Arts

- Digital Arts — Certificate for Direct Employment
- Digital Arts — Associate of Applied Science Degree for Direct Employment
- Digital and Film Arts — Certificate for Direct Employment
- Digital and Film Arts — Associate of Applied Science Degree for Direct Employment
- Digital and Film Arts Animation — Associate of Applied Science Degree for Direct Employment
- Digital and Film Arts — Associate of Arts Degree for Transfer

This program area provides training for direct employment in the Digital and Arts fields or Associate of Arts Degree for Transfer. Program courses and advising are offered on the West Campus.

## Digital Arts — Certificate for Direct Employment

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

Communication Requirement . . . . .	3
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>6</b>

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

DAR 101*	Color Rendering and Theory . . . . .	4
DAR 111*	Typography. . . . .	4
DAR 112*	Graphic Design I . . . . .	4
DAR 122*	DeskTop Graphics: Adobe Illustrator	
or DAR 123*	DeskTop Graphics: Macromedia Freehand	
or DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop . . . . .	4
<b>Subtotal . . . . .</b>		<b>16</b>

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

Choose one of the following options: . . . . . 16-22  
(Department faculty advisor or counselor approval is recommended in the selection of the program option.)

#### Graphic Design

DAR 126	Introduction to Offset Printing . . . . .	4
DAR 210*	Graphic Design II . . . . .	4
DAR 214*	Communication Graphics Business and Portfolio . . . . .	2
DAR 220*	DeskTop Publishing for Communication Graphics:QuarkXpress . . . . .	4
DAR 221*	Photo Image Editing: Adobe PhotoShop . . . . .	4
DAR 230*	Production Techniques for Print . . . . .	4

#### DeskTop Publishing

DAR 210*	Graphic Design II . . . . .	4
DAR 220*	DeskTop Publishing for Communication Graphics: QuarkXpress	
or DAR 121*	DeskTop Publishing for Communication Graphics: PageMaker	
or DAR 226*	DeskTop Publishing for Communication Graphics: Adobe InDesign . . . . .	4
DAR 221*	Photo Image Editing: Adobe PhotoShop . . . . .	4
DAR 230*	Production Techniques for Print . . . . .	4

*continued next page*

Program Identification Code:  
**CRTCOMMGRAPH**

*This certificate introduces students to the skills required for entry level positions in Digital Arts with options in Graphic Design, Desktop Publishing or Web Design. Entry requirements for this certificate are DAR100, 103, and DAR 051 or 120.*



## Digital Arts — Certificate for Direct Employment *(continued)*

### Web Design

DAR 221*	Photo Image Editing . . . . .	4
DAR 252*	Computer Multimedia Design I . . . . .	4
DAR 256*	Web Design . . . . .	4
DAR 257*	Advanced Web Design . . . . .	4
<b>Total credits as displayed . . . . .</b>		<b>32-38</b>

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

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

Program Identification Code:

**AASCOMMGRAPH**

*This program trains students for careers in Design, Illustration, Multimedia, Web Design and Printing Technology (Offset Printing). Entry requirements for the Associate of Applied Science Degree are DAR 100, DAR 103, and DAR 051 or 120. The certificate course work satisfies requirements toward this degree.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement . . . . .		6
See General Education section, page 49		
Analysis and Critical Thinking Requirement . . . . .		6
See General Education section, page 49		
Humanities and Social Science Requirement . . . . .		3
Any required support course will fulfill 3 credits of this requirement.		
See General Education section, page 49		
Computer and Information Literacy Requirement . . . . .		†
Core courses fulfill this requirement.		
<b>Subtotal . . . . .</b>		<b>15</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

DAR 101*	Color Rendering and Theory . . . . .	4
DAR 111*	Typography . . . . .	4
DAR 112*	Graphic Design I . . . . .	4
DAR 122*	DeskTop Graphics: Adobe Illustrator	
or DAR 123*	DeskTop Graphics: Macromedia Freehand . . . . .	4
DAR 210*	Graphic Design II . . . . .	4
DAR 214*	Communication Graphics Business and Portfolio . . . . .	2
DAR 220*	DeskTop Publishing for Communication Graphics: QuarkXpress . . . . .	4
DAR 221*	Photo Image Editing: Adobe PhotoShop . . . . .	4
DAR 230*	Production Techniques for Print . . . . .	4
<b>Subtotal . . . . .</b>		<b>34</b>

### Required Support Course

ART 105	Understanding Art	
or ART 130	Art and Culture I — Prehistoric to Gothic	
or ART 131	Art and Culture II — Late Gothic to Modern . . . . .	3
<b>Subtotal . . . . .</b>		<b>3</b>

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

Choose one of the following options: ..... 16  
 Department faculty advisor or counselor approval is recommended in the selection of the program option.

**Design**

DAR 121*	DeskTop Publishing for Communication Graphics: PageMaker	
or DAR 226*	DeskTop Publishing for Communication Graphics: Adobe InDesign	4
DAR 126	Introduction to Offset Printing	4
DAR 211*	Graphic Design III	4
DAR 256*	Web Design	4

**Illustration**

DAR 140*	Digital/Traditional Illustration and Cartooning I	4
DAR 145*	Digital/Traditional Illustration and Cartooning II	4
DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop	4
DAR 223*	Computer Painting	4

**Multimedia**

DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop	
or DAR 223*	Computer Painting	
or DAR 253*	Digital Video with Premiere	4
DAR 250*	Computer 2D Animation: Adobe After Effects	4
DAR 251*	Computer 3D Animation	4
DAR 252*	Computer Multimedia Design I	4

**Web Design**

DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop	4
DAR 252*	Computer Multimedia Design I	4
DAR 256*	Web Design	4
DAR 257*	Advanced Web Design	4

**Printing Technology (Offset Printing)**

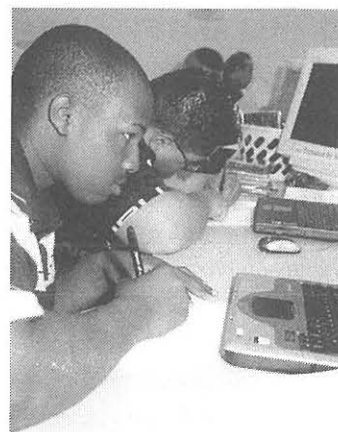
DAR 126	Introduction to Offset Printing	4
DAR 141*	Digital Pre-Press Production	3
DAR 150*	Customer Service Technology	3
DAR 190*	Industry Experience in Graphic Pre-Press	
or DAR 290A*	Industry Experience in Presswork	3
DAR 216*	Offset Presswork	3

**Total credits as displayed ..... 68§**

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

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

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



## Digital and Film Arts — Certificate for Direct Employment

Program Identification Code:  
**CRTDIGIFILM**

*The Digital and Film Arts certificate is an intensive, hands-on program designed to prepare students for positions as media center managers, television news camera persons, television production camera persons, television news tape editors, television commercial producers, scriptwriters and audio technicians. Successful graduates will be able to work in various film formats, digital video formats, analog video formats, make simple repairs to various equipment, recommend equipment purchases and assess media production needs.*

*Cooperative education opportunities exist in television stations, production centers, industrial video facilities and audio production studios. To be eligible, students must have completed at least six credit hours of Digital and Film Arts classes, have available time to work on site and have access to necessary transportation. A good background of writing courses is strongly recommended for students entering this field. Aptitudes for mechanics, graphic design, art, music and verbal expression are also helpful.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101 fulfills this requirement.	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>3</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

DAR 103	Introduction to Digital Arts . . . . .	3
DAR 124*	Writing for Film and Television . . . . .	3
DAR 125*	Beginning Video Production . . . . .	3
DAR 173	History of American Cinema. . . . .	3
DAR 175*	Cinematography . . . . .	3
DAR 205*	Lighting for Film and Video. . . . .	4
DAR 275*	Basic Audio Production . . . . .	4
DAR 285	Documentary Television and Film Production . . . . .	4
DAR 290B	Digital Arts Internship . . . . .	3
<b>Subtotal . . . . .</b>		<b>30</b>

### Required Support Course

WRT 101	Writing I. . . . .	3
<b>Subtotal . . . . .</b>		<b>3</b>

**Total credits as displayed . . . . . 36**

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

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

## Digital and Film Arts — Associate of Applied Science Degree for Direct Employment

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

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

Communication Requirement . . . . .	†
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CSA 101 fulfills this requirement.	

**Subtotal . . . . . 12**

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

DAR 103	Introduction to Digital Arts . . . . .	3
DAR 124*	Writing for Film and Television . . . . .	3
DAR 125*	Beginning Video Production . . . . .	3
DAR 173	History of American Cinema . . . . .	3
DAR 175*	Cinematography . . . . .	3
DAR 205*	Lighting for Film and Video . . . . .	4
DAR 215*	Advanced Cinematography . . . . .	4
DAR 217*	Post Production for Film . . . . .	4
DAR 225*	Advanced Video Production . . . . .	4
DAR 275*	Basic Audio Production . . . . .	4
DAR 276*	Advanced Audio Production . . . . .	4
DAR 285*	Documentary Television and Film Production . . . . .	4
<b>Subtotal . . . . .</b>		<b>43</b>

### Required Support Courses

CSA 101	Computer Fundamentals . . . . .	3
WRT 101	Writing I . . . . .	3
WRT 102*	Writing II . . . . .	3
Electives . . . . .		3-4
Select 3-4 credits from the following list:		
DAR 127, 174, 176, 177, 224, 277, 281, 290B, 296		

**Subtotal . . . . . 12-13**

**Total credits as displayed . . . . . 67-68§**

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

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

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

Program Identification Code:  
**AASDIGIFILM**

*Persons trained in Digital and Film Arts can work in a variety of jobs in the production of television programs, films and audio programs. The field includes such jobs as writer, producer, editor, director, camera operator, sound designer, Web designer and graphic designer.*

*Instruction includes digital camera operation, non linear video editing, studio production, digital audio production, desktop publishing, art and graphic design, computer applications in media, electronic field production, electronic news gathering, film production, film editing, lighting, script writing, and digital photography. The Associate Degree programs also involve students as interns at work sites in the community through cooperative education courses. Student activities also include student-produced films and videos which are aired locally on cable television and shown in local media arts centers.*



## Digital and Film Arts Animation — Associate of Applied Science Degree for Direct Employment

Program Identification Code:  
**AASANIMATION**

*This degree is designed for direct employment, to prepare students for entry level careers in animation, digital/film arts, multimedia and communication graphics. The degree provides a course of study that develops the digital and film Arts disciplines of script writing, video production, cinematography, and film animation, combined with communication graphics skills of drawing, illustration, and cartooning, digital imaging and computer animation. A creative background in drawing, art, music, design, computers and electronics is helpful but not required. Entry requirements for this degree are DAR 100, 103 and DAR 051, or 120.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	3
DAR 250 fulfills 3 credits of this requirement.	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 49	
<b>Subtotal.</b> . . . . .	<b>10-12</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 101*	Color Rendering and Theory . . . . .	4
DAR 122*	DeskTop Graphics: Adobe Illustrator . . . . .	4
DAR 124*	Writing for Film and Television . . . . .	3
DAR 125*	Beginning Video Production . . . . .	3
DAR 140*	Digital/Traditional Illustration and Cartooning I . . . . .	4
DAR 173*	History of American Cinema. . . . .	3
DAR 175*	Cinematography . . . . .	3
DAR 176	Film Animation . . . . .	3
DAR 215*	Advanced Cinematography . . . . .	4
DAR 221*	Photo Image Editing: Adobe PhotoShop . . . . .	4
DAR 223*	Computer Painting . . . . .	4
DAR 250*	Computer 2-D Animation: Adobe After Effects . . . . .	4
DAR 251*	Computer 3-D Animation . . . . .	4
<b>Subtotal</b> . . . . .		<b>47</b>

### Required Support Courses

WRT 101*	Writing I. . . . .	3
WRT 102*	Writing II . . . . .	3
<b>Subtotal</b> . . . . .		<b>6</b>

**Total credits as displayed . . . . . 63-65§**

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

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

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

## Digital and Film Arts — Associate of Arts Degree for Transfer

A student planning on obtaining a Digital and Film Arts degree should follow the **Associate of Arts 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. For additional information on Associate of Arts Degree for Transfer in Liberal Arts and Associate of Science Degree transferability to regional universities, please refer to the chart in the front of this section.

Program Identification Code:  
**AOALIBRALART**

## Early Childhood Education and Child Development Associate

- Teacher Aide/Assistant Certificate for Direct Employment
- Teacher/Director — Associate of Applied Science Degree for Direct Employment
- Basic School-Age Child Care Assistant Certificate for Direct Employment
- Advanced School-Age Child Care Certificate for Direct Employment
- School-Age Child Care — Associate of Applied Science Degree for Direct Employment
- Child Development Associate Certificate for Direct Employment
- Child Development Associate — Associate of Applied Science Degree for Direct Employment

The program may also be arranged for transfer to either Arizona or out-of-state universities in the following areas: child development and family relations, elementary education, secondary education, special education and early childhood education. Students should first consult the catalog of the institution to which they plan to transfer to determine requirements for the first two years. They should arrange their transfer program with an advisor or counselor, using this catalog information. (See Education section.)

Also available is the Child Development Associate Certificate for Direct Employment and Associate of Applied Science Degree with options in Infant/Toddler, Preschool, School Age, Family Child Care, and Management. This certificate and degree does not transfer. See an early childhood education faculty advisor or counselor for more information.

## Teacher Aide/Assistant — Certificate for Direct Employment

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

Communication Requirement . . . . .	3
See General Education section, page 49 . . . . .	3
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49 . . . . .	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.

ECE 106	The Growing Years	
or ECE 117*	Child Growth and Development . . . . .	3
ECE 108	Literature/Social Studies for Children . . . . .	3
ECE 110	Communication and Language: Early Literacy for Children . . . . .	3
ECE 112	Music and Art for Children . . . . .	3
ECE 124*	Math and Science for Children . . . . .	3
ECE 128	Preschool and Child Care . . . . .	3
ECE 199*	Co-op Related Class in ECE . . . . .	1
ECE 199WK*	Co-op Work in ECE . . . . .	2
ECE 226*	Teaching Techniques and Behavior Management . . . . .	4
EDU 200	Introduction to Education . . . . .	3
<b>Subtotal . . . . .</b>		<b>28</b>

*continued next page*

Program Identification Code:  
**CRTTEACHAIDE**

*This certificate provides the skills and knowledge to become a teacher aide or teacher assistant and is the foundation for the Teacher/Director Associate of Applied Science Degree.*

## Teacher Aide/Assistant — Certificate for Direct Employment *(continued)*

### Required Support Course

WRT 100	Writing Fundamentals.....	3
<b>Subtotal</b> .....		<b>3</b>
<b>Total credits as displayed</b> .....		<b>37</b>

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

## Teacher/Director — Associate of Applied Science Degree for Direct Employment

Program Identification Code:

**AASTEACHDRCT**

*This degree provides the skills and knowledge to come a teacher/director. For those interested in a college or university degree in education, see a counselor or advisor.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement .....		6
See General Education section, page 49		
Analysis and Critical Thinking Requirement .....		6
See General Education section, page 49		
Humanities and Social Science Requirement .....		6
See General Education section, page 49		
Computer and Information Literacy Requirement .....		1-3
See General Education section, page 49		
<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 106	The Growing Years	
or ECE 117*	Child Growth and Development .....	3
ECE 107*	Human Development and Relations .....	3
ECE 108	Literature/Social Studies for Children .....	3
ECE 110	Communication and Language: Early Literacy for Children .....	3
ECE 111*	Special Education for Children .....	3
ECE 112	Music and Art for Children .....	3
ECE 114	Effective Parenthood .....	3
ECE 120*	Supervision and Administration of Early Childhood Programs .....	3
ECE 124*	Math and Science for Children .....	3
ECE 128	Preschool and Child Care .....	3
ECE 130	School-Age Child Care and Program Development .....	3
ECE 199*	Co-op Related Class in ECE .....	1
ECE 199WK*	Co-op Work in ECE .....	2
ECE 299*	Co-op Related Class in ECE .....	1
ECE 299WK*	Co-op Work in ECE .....	2
ECE 226*	Teaching Techniques and Behavior Management .....	4
EDU 200*	Introduction to Education .....	3
<b>Subtotal</b> .....		<b>46</b>

**Required Support Course**

ECE 125	Nutrition, Health, and Safety for the Young Child . . . . .	3
<b>Subtotal.</b>		<b>3</b>

**Total credits as displayed . . . . . 68-70§**

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

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

## Basic School-Age Child Care Assistant Certificate for Direct Employment

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

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

ECE 106	The Growing Years	
or ECE 117*	Child Growth and Development . . . . .	3
ECE 130	School-Age Child Care and Program Development . . . . .	3
ECE 199*	Co-op Related Class in ECE . . . . .	1-8
ECE 199WK*	Co-op Work in ECE . . . . .	2
ECE 226*	Teaching Techniques and Behavior Management. . . . .	4
EDU 108*	Music, Art, and Drama for School-Aged Child Care . . . . .	3
FSS 242	Games and Activities for the School-Aged Child. . . . .	3
<b>Total credits as displayed</b>		<b>19-26</b>

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

Program Identification Code:  
**CRTCHILDCR-B**

*The Pima Community College Early Childhood Education program offers a series of courses that may lead to direct employment in the growing field of school-age child care.*

*The school-age child care educational experience is articulated through a four semester system which offers degree certification through a basic certificate for Program Assistant in School-Age Child Care following successful completion of two semesters of study.*

## Advanced School-Age Child Care — Certificate for Direct Employment

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

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

Communication Requirement . . . . .	†
SPE 102 fulfills this requirement.	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49	
<b>Subtotal.</b>	<b>3</b>

*continued next page*

Program Identification Code:  
**CRTCHILDCR-A**

*The Pima Community College Early Childhood Education program offers a series of courses that may lead to direct employment in the growing field of school-age child care.*



## Advanced School-Age Child Care — Certificate for Direct Employment *(continued)*

The school-age child care educational experience is articulated through a four semester system which offers degree certification through a basic certificate for Program

Assistant in School-Age Child Care following successful completion of two semesters of study.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ECE 106 or ECE 117*	The Growing Years Child Growth and Development . . . . .	3
ECE 111*	Special Education for Children . . . . .	3
ECE 130	School-Age Child Care and Program Development . . . . .	3
ECE 199*	Co-op Related Class in ECE . . . . .	1
ECE 199WK*	Co-op Work in ECE . . . . .	2
ECE 299*	Co-op Related Class in ECE . . . . .	1
ECE 299WK*	Co-op Work in ECE . . . . .	2
ECE 226*	Teaching Techniques and Behavior Management . . . . .	4
EDU 108*	Music, Art, and Drama for School-Aged Child Care . . . . .	3
EDU 109*	Language Arts, Science, and Math for School-Age Child Care . . . . .	3
FSS 242	Games and Activities for the School-Aged Child . . . . .	3
<b>Subtotal</b>		<b>28</b>
<b>Required Support Course</b>		
SPE 102	Speech Communication . . . . .	3
<b>Subtotal</b>		<b>3</b>
<b>Total credits as displayed</b>		<b>34</b>

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

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

## School-Age Child Care — Associate of Applied Science Degree for Direct Employment

Program Identification Code:  
**AASCHILDCARE**

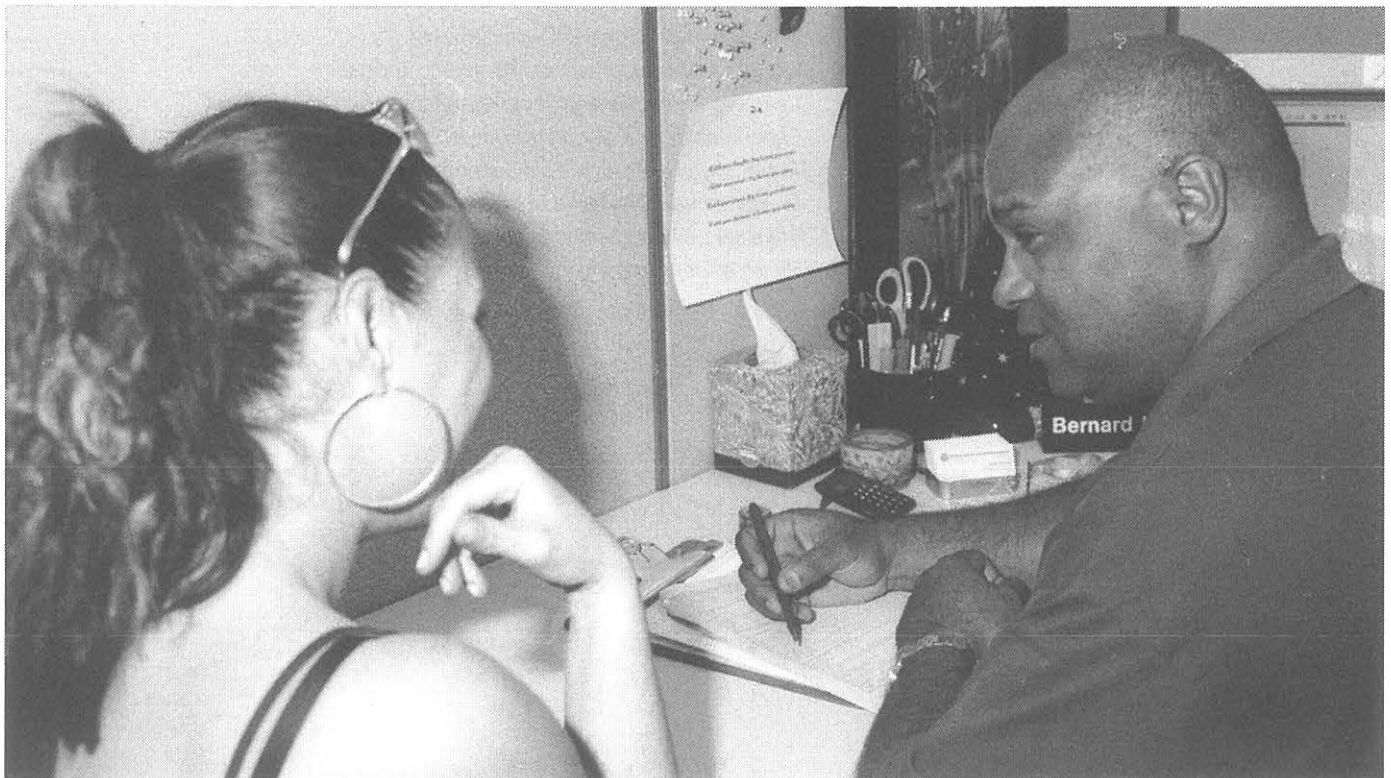
This program is designed for direct employment in the field of child care. However, most required general education and support courses will transfer to Arizona State University, Northern Arizona University, or the University of Arizona. Depending upon the transfer institution chosen, some core courses may also transfer. It is important for the student to see an academic advisor or counselor concerning the transferability of these courses to the institution of his/her choice.

<b>General Education Requirements - A grade of C or better is required for graduation.</b>	
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 49	
<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>		
ECE 106 or ECE 117*	The Growing Years Child Growth and Development . . . . .	3
ECE 111*	Special Education for Children . . . . .	3
ECE 120*	Supervision and Administration of Early Childhood Programs . . . . .	3
ECE 130	School-Age Child Care and Program Development . . . . .	3
ECE 199*	Co-op Related Class in ECE . . . . .	1
ECE 199WK*	Co-op Work in ECE . . . . .	2
ECE 299*	Co-op Related Class in ECE . . . . .	1
ECE 299WK*	Co-op Work in ECE . . . . .	2
ECE 226*	Teaching Techniques and Behavior Management . . . . .	4
EDU 108*	Music, Art, and Drama for School-Age Child Care . . . . .	3
EDU 109*	Language Arts, Science, and Math for School-Age Child Care . . . . .	3
FSS 242	Games and Activities for the School-Aged Child . . . . .	3
<b>Subtotal . . . . .</b>		<b>31</b>
<b>Required Support Courses</b>		
SPE 102	Speech Communications . . . . .	3
SSE 146	Child Abuse Intervention and Protection . . . . .	3
Science Electives . . . . .		8
Select any AGECE categorical requirement from the biological and physical sciences list		
<b>Subtotal . . . . .</b>		<b>14</b>
<b>Total credits as displayed . . . . .</b>		<b>64-66§</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.



## Child Development Associate — Certificate for Direct Employment

Program Identification Code:  
**CRTCHILDDEV**

*The Child Development Associate training program consists of individualized, competency-based courses taught primarily in workplace early childhood settings where students work with children. Faculty are assigned to students enrolled in these courses, which are organized around the competencies adopted by the C.D.A. National Credentialing Program. This program has five options: Infant/Toddler, Preschool, School-Age, Family Child Care, and Management.*

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CDA 103	Planned Arrangements and Schedules . . . . .	1
CDA 104	Ensuring a Safe Environment for Children . . . . .	1
CDA 119	Providing a Healthy Environment for Children . . . . .	1
CDA 121	Techniques for Observing Children . . . . .	1
CDA 131	Building Relationships with Parents Through Communication . . . . .	1
CDA 132	Supporting the Growth and Education of Parents . . . . .	1
CDA 133	Enhancing Family Involvement. . . . .	1
CDA 151	Nutrition. . . . .	1
CDA 170	Ages and Stages of Young Children: Prenatal Through Toddlerhood . . . . .	1
CDA 173	Ages and Stages for Young Children: The Preschool Years . . . . .	1
CDA 271	Professionalism in Child Care. . . . .	1
<b>Subtotal</b>		<b>11</b>
<b>Core Options: - A grade of C or better is required for graduation.</b>		
Choose one of the following options: . . . . .		14-17
Department faculty advisor or counselor approval is recommended in the selection of the program option.		
<b>Infant/Toddler Option</b>		
CDA 114	Collecting, Organizing, and Using Teaching Aids . . . . .	1
CDA 128	Record Keeping Skills for Daily Infant/Toddler Care Programs . . . . .	1
CDA 129	Organization of Space, Materials, and Equipment for Infants and Toddlers . . . . .	1
CDA 130	Observation Skills of Infants and Toddlers . . . . .	1
CDA 141	Fostering Communication and Language . . . . .	1
CDA 203	Creative Media . . . . .	1
CDA 224	Application of Cognitive Development. . . . .	1
CDA 225	Language Development of Infants and Toddlers. . . . .	1
CDA 226	Learning Principles and Theories of Cognitive Development . . . . .	1
CDA 227	Sensorimotor Learning in Infancy and Toddlerhood . . . . .	1
CDA 228	Autonomy and Positive Self-Concept of Infants and Toddlers. . . . .	1
CDA 235	Guidance and Discipline of Infants and Toddlers . . . . .	1
CDA 253	Physical Development in Infancy . . . . .	1
CDA 254	Physical Development in Toddlerhood. . . . .	1

**Preschool Option**

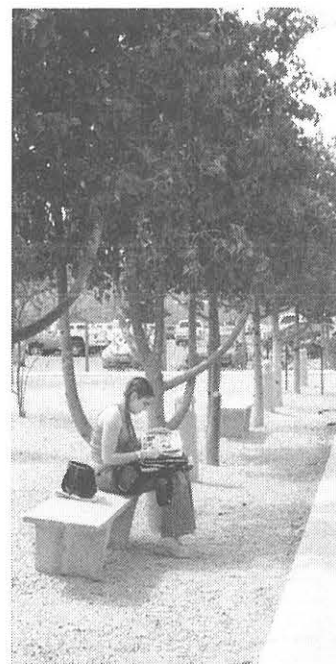
CDA 114	Collecting, Organizing, and Using Teaching Aids . . . . .	1
CDA 120	The Child's Total Learning Environment . . . . .	1
CDA 141	Fostering Communication and Language . . . . .	1
CDA 142	Beginning Mathematical Concepts . . . . .	1
CDA 143	Science and Discovering . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities . . . . .	1
CDA 155	Understanding How Children Learn . . . . .	1
CDA 161	Enhancing a Positive Self-Concept . . . . .	1
CDA 201	Music and Creative Movement . . . . .	1
CDA 202	Dramatic Play . . . . .	1
CDA 203	Creative Media . . . . .	1
CDA 211	Large Muscle Development . . . . .	1
CDA 212	Small Muscle Development . . . . .	1
CDA 222	Elements of Children's Culture . . . . .	1
CDA 275	Transitions . . . . .	1

**School-Age Option**

CDA 112	Guidance Principles for Encouraging Self-Discipline . . . . .	1
CDA 114	Collecting, Organizing, and Using Teaching Aids . . . . .	1
CDA 120	The Child's Total Learning Environment . . . . .	1
CDA 141	Fostering Communication and Language . . . . .	1
CDA 143	Science and Discovery . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities . . . . .	1
CDA 155	Understanding How Children Learn . . . . .	1
CDA 161	Enhancing a Positive Self-Concept . . . . .	1
CDA 201	Music and Creative Movement . . . . .	1
CDA 202	Dramatic Play . . . . .	1
CDA 203	Creative Media . . . . .	1
CDA 211	Large Muscle Development . . . . .	1
CDA 212	Small Muscle Development . . . . .	1
CDA 256	Math for School Age Children . . . . .	1
CDA 273	Ages and Stages: The Middle Childhood Years . . . . .	1
CDA 274	Emerging Literacy . . . . .	1

**Family Child Care Option**

CDA 112	Guidance Principles for Encouraging Self-Discipline . . . . .	1
CDA 114	Collecting, Organizing, and Using Teaching Aids . . . . .	1
CDA 120	The Child's Total Learning Environment . . . . .	1
CDA 141	Fostering Communication and Language . . . . .	1
CDA 142	Beginning Mathematical Concepts . . . . .	1
CDA 143	Science and Discovery . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities . . . . .	1
CDA 155	Understanding How Children Learn . . . . .	1
CDA 161	Enhancing a Positive Self-Concept . . . . .	1
CDA 201	Music and Creative Movement . . . . .	1
CDA 202	Dramatic Play . . . . .	1
CDA 211	Large Muscle Development . . . . .	1
CDA 212	Small Muscle Development . . . . .	1
CDA 235	Guidance and Discipline of Infants and Toddlers . . . . .	1
CDA 257	Record Keeping for the Family Child Care Provider . . . . .	1
CDA 258	Family Child Care as a Small Business . . . . .	1
CDA 259	Balancing Work and Family in a Family Child Care Setting . . . . .	1

*continued next page*



## Child Development Associate — Certificate for Direct Employment *(continued)*

### Management Option

ACC 215*	QuickBooks Computer Accounting	2
or ACC 220*	Peachtree Computer Accounting	2
CDA 135	Childcare Facility: Startup, Equipment, and Budgets	1
CDA 136	Childcare Facility: Staff Selection and Training	1
CDA 137	Childcare Facility: Health, Evaluation, and Community Partners	1
CDA 257	Record Keeping for the Family Child Care Provider	1
CDA 258	Family Child Care as a Small Business	1
CDA 259	Balancing Work and Family in a Family Child Care Setting	1
ECE 128	Preschool and Child Care	3
ECE 130	School-Age Child Care and Program Development	3
MGT 124	Small Business Management	3
<b>Total credits as displayed</b>		<b>25-28</b>

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

## Child Development Associate — Associate of Applied Science Degree for Direct Employment

Program Identification Code:

**AASCHILDDEV**

*The Child Development Associate training program offers an Associate Degree or Certificate that consists of individualized, competency-based courses taught primarily in workplace early childhood settings where students work with children. Faculties are assigned to students enrolled in these courses, which are organized around the competencies adopted by the CDA National Credentialing Program. Pima College CDA courses are transferable to the Pima Community college Early Childhood Teacher Aide/Assistant, Teacher/Director, and School-Age Child Care Worker Programs. See an Early Childhood education faculty advisor or counselor. This program has five options: Infant/Toddler, Preschool, School-Age, Family Child Care, and Management.*

### 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.	6
Communication Requirement	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement	6
See General Education section, page 49	
Humanities and Social Science Requirement	3
SSE110 fulfills 3 credits of this requirement.	
See General Education section, page 49	
Computer and Information Literacy Requirement	1-3
See General Education section, page 49	
<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.

CDA 103	Planned Arrangements and Schedules	1
CDA 104	Ensuring a Safe Environment for Children	1
CDA 119	Providing a Health Environment for Children	1
CDA 121	Techniques for Observing Children	1
CDA 131	Building Relationships with Parents through Communication	1
CDA 132	Supporting the Growth and Education of Parents	1
CDA 133	Enhancing Family Involvement	1
CDA 151	Nutrition	1
CDA 170	Ages and Stages of Young Children: Prenatal Through Toddlerhood	1
CDA 173	Ages and Stages of Young Children: The Preschool Years	1
CDA 271	Professionalism in Child Care	1
<b>Subtotal</b>		<b>11</b>

**Required Support Courses**

ECE 106	The Growing Years	
or ECE 117*	Child Growth and Development . . . . .	3
ECE 111*	Special Education for Children	
or ECE 120*	Supervision and Administration of Early Childhood Programs . . . . .	3
EDU 100	Principles of Bilingual Education . . . . .	3
EDU 200*	Introduction to Education . . . . .	3
SOC 127	Marriage and the Family . . . . .	3
SSE 110	Introduction to Social Welfare . . . . .	3
<b>Subtotal</b>		<b>18</b>

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

Choose one of the following options: . . . . . 15-17  
 (Department faculty advisor or counselor approval is recommended in the selection of the program option.)

**Infant/Toddler Option**

CDA 114	Collecting, Organizing, and Using Teaching Aids . . . . .	1
CDA 128	Record Keeping Skills for Daily Infant/Toddler Care Programs . . . . .	1
CDA 129	Organization of Space, Materials, and Equipment for Infants and Toddlers . . . . .	1
CDA 130	Observation Skills of Infants and Toddlers . . . . .	1
CDA 141	Fostering Communication and Language . . . . .	1
CDA 203	Creative Media . . . . .	1
CDA 224	Application of Cognitive Development . . . . .	1
CDA 225	Language Development of Infants and Toddlers . . . . .	1
CDA 226	Learning Principles and Theories of Cognitive Development . . . . .	1
CDA 227	Sensorimotor Learning in Infancy and Toddlerhood . . . . .	1
CDA 228	Autonomy and Positive Self-Concept of Infants and Toddlers . . . . .	1
CDA 235	Guidance and Discipline of Infants and Toddlers . . . . .	1
CDA 253	Physical Development in Infancy . . . . .	1
CDA 254	Physical Development in Toddlerhood . . . . .	1
Electives	Any course numbered 100 or higher . . . . .	1-3

*continued next page*

**Child Development Associate — Associate of Applied Science Degree for Direct Employment***(continued)***Preschool Option**

CDA 112	Guidance Principles for Encouraging Self-Discipline . . . . .	1
CDA 114	Collecting, Organizing, and Using Teaching Aids . . . . .	1
CDA 120	The Child's Total Learning Environment . . . . .	1
CDA 141	Fostering Communication and Language . . . . .	1
CDA 142	Beginning Mathematical Concepts . . . . .	1
CDA 143	Science and Discovering . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities . . . . .	1
CDA 155	Understanding How Children Learn . . . . .	1
CDA 161	Enhancing a Positive Self-Concept . . . . .	1
CDA 201	Music and Creative Movement . . . . .	1
CDA 202	Dramatic Play . . . . .	1
CDA 203	Creative Media . . . . .	1
CDA 211	Large Muscle Development . . . . .	1
CDA 212	Small Muscle Development . . . . .	1
CDA 222	Elements of Children's Culture . . . . .	1
CDA 275	Transitions . . . . .	1

**School-Age Option**

CDA 112	Guidance Principals for Encouraging Self-Discipline . . . . .	1
CDA 114	Collecting, Organizing, and Using Teaching Aids . . . . .	1
CDA 120	The Child's Total Learning Environment . . . . .	1
CDA 141	Fostering Communication and Language . . . . .	1
CDA 142	Beginning Mathematical Concepts . . . . .	1
CDA 143	Science and Discovery . . . . .	1
CDA 152	Enhancing Questioning and Problem Solving Abilities . . . . .	1
CDA 155	Understanding How Children Learn . . . . .	1
CDA 161	Enhancing a Positive Self-Concept . . . . .	1
CDA 201	Music and Creative Movement . . . . .	1
CDA 202	Dramatic Play . . . . .	1
CDA 203	Creative Media . . . . .	1
CDA 211	Large Muscle Development . . . . .	1
CDA 212	Small Muscle Development . . . . .	1
CDA 256	Math for School Age Children . . . . .	1
CDA 273	Ages and Stages: The Middle Childhood Years . . . . .	1
CDA 274	Emerging Literacy . . . . .	1

**Family Child Care Option**

CDA 112	Guidance Principles for Encouraging Self-Discipline .....	1
CDA 114	Collecting, Organizing, and Using Teaching Aids .....	1
CDA 120	The Child's Total Learning Environment .....	1
CDA 141	Fostering Communication and Language .....	1
CDA 142	Beginning Mathematical Concepts .....	1
CDA 143	Science and Discovery .....	1
CDA 152	Enhancing Questioning and Problem Solving Abilities .....	1
CDA 155	Understanding How Children Learn .....	1
CDA 161	Enhancing a Positive Self-Concept .....	1
CDA 201	Music and Creative Movement .....	1
CDA 202	Dramatic Play .....	1
CDA 211	Large Muscle Development .....	1
CDA 212	Small Muscle Development .....	1
CDA 235	Guidance and Discipline of Infants and Toddlers .....	1
CDA 257	Record Keeping for the Family Child Care Provider .....	1
CDA 258	Family Child Care as a Small Business .....	1
CDA 259	Balancing Work and Family in a Family Child Care Setting .....	1

**Management Option**

ACC 215*	QuickBooks Computer Accounting .....	
or ACC 220*	Peachtree Computer Accounting .....	2
CDA 135	Childcare Facility: Startup, Equipment, and Budgets .....	1
CDA 136	Childcare Facility: Staff Selection and Training .....	1
CDA 137	Childcare Facility: Health, Evaluation, and Community Partnerships .....	1
CDA 257	Record Keeping for the Family Child Care Provider .....	1
CDA 258	Family Child Care as a Small Business .....	1
CDA 259	Balancing Work and Family in a Family Child Care Setting .....	1
ECE 128	Preschool and Child Care .....	3
ECE 130	School-Age Child Care and Program Development .....	3
MGT 124	Small Business Management .....	3

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

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

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





## Education

- Elementary Education — Associate of Arts Degree for Transfer
- Teacher Certification Elementary or Secondary — Advanced Certificate for Direct Employment
- Education Endorsement — ESL — Advanced Certificate for Direct Employment
- Education Endorsement — Middle School — Advanced Certificate for Direct Employment
- Education Endorsement — K-12 Reading — Advanced Certificate for Direct Employment

Students may obtain teacher certifications following two paths at Pima Community College:

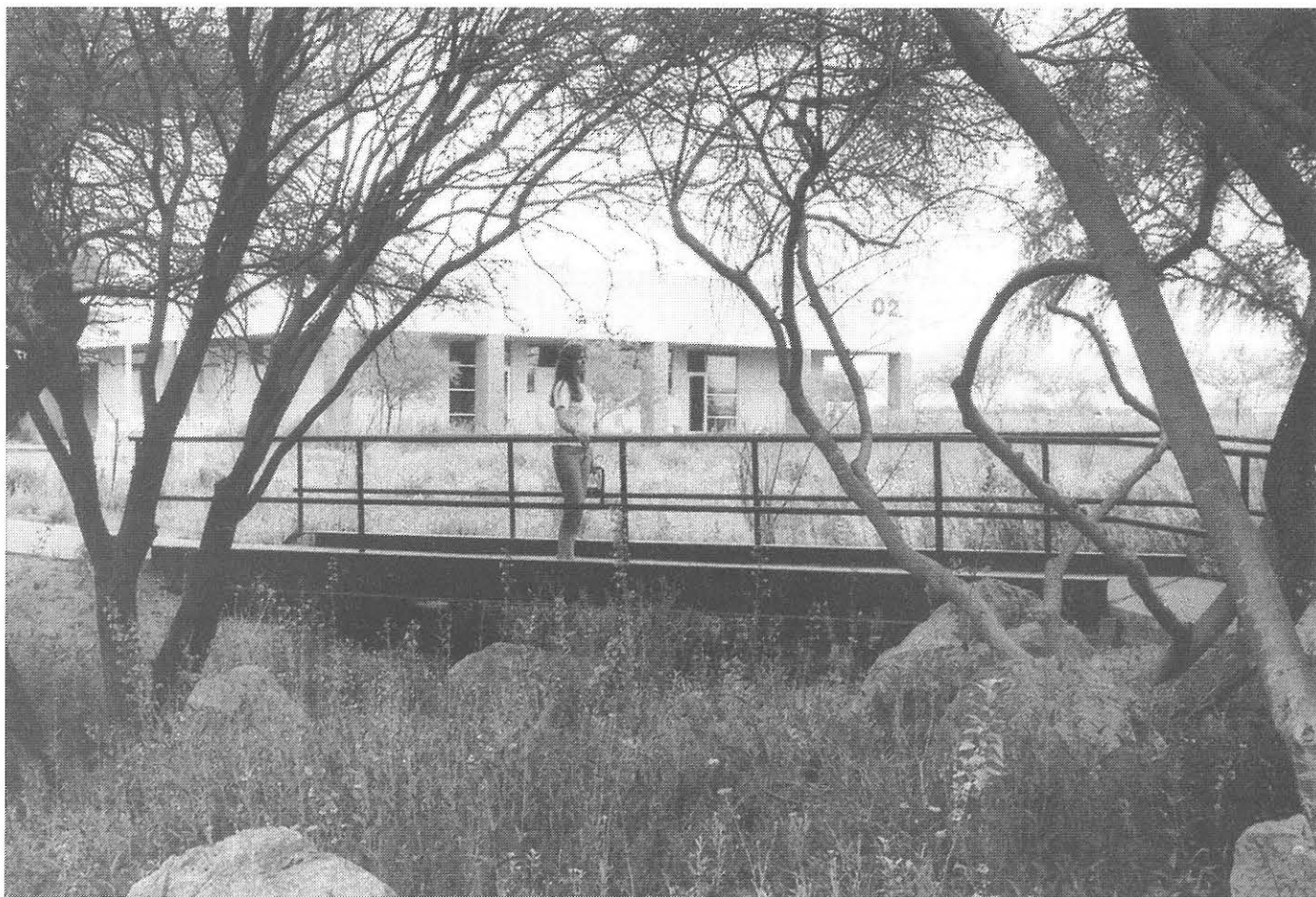
1. Students with a baccalaureate degree may obtain certification by applying for and completing the Advanced Certificate for Direct Employment — Teacher Certification.
2. Students without a baccalaureate degree may obtain certification by completing a Pima Community College transfer degree and transferring to a four-year university offering education degrees. Students have several options: Elementary, Secondary, Rehabilitation, or Special Education.

### A. Elementary Education:

The A. A. in Elementary Education is newly developed and is transferable to the elementary education program at any of Arizona's three state universities. Students should be aware that teacher education is a 4-year degree program and admission to the university may be dependent on a number of factors, including mandated pre-professional tests, grade point average, and pre-professional experience. It is recommended that students work with the college counselor regarding specific coursework to be completed.

### B. Secondary, Rehabilitation, or Special Education:

Students interested in secondary, rehabilitation, or special education teaching are advised to follow the A. A. Degree for Transfer in Liberal Arts to any of the state universities. Please see the Liberal Arts display in this catalog, see a Pima Community College advisor or counselor and follow the transfer guide of the university or college of your choice. Teaching in these area requires that students have a major in a discipline area that is taught in Arizona high schools, as well as a concentration area in education. It is recommended that students also work closely with an advisor or counselor at the college/university they plan to transfer to for information regarding admission requirements.



## Elementary Education — Associate of Arts for Transfer

### 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.	
English Composition . . . . .	6
WRT 101 and 102 or WRT 107 and 108	
Humanities and Fine Arts . . . . .	†
Support courses fulfill this requirement.	
Biological and Physical Sciences . . . . .	†
Support courses fulfill this requirement	
Mathematics . . . . .	†
MAT 142 fulfills this requirement.	
Social and Behavioral Sciences . . . . .	†
Support courses fulfill this requirement	
Other Requirements. . . . .	†
Support courses fulfill the I, C, and G requirements.	
<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 200	Introduction to Education . . . . .	3
EDU 201	Diversity in Education . . . . .	3
EDU 202	Introduction to the Exceptional Learner . . . . .	3
EDU 206	Relationships in Classroom Settings . . . . .	3
ETT 101	Introduction to Educational Technology . . . . .	2
<b>Subtotal</b> . . . . .		<b>14</b>

### Required Support Courses

ART 105*	Art Appreciation . . . . .	3
<b>Subtotal</b> . . . . .		<b>3</b>

HISTORY . . . . .	6
Complete both courses	
HIS 101	Introduction to Western Civilization I
HIS 141	History of the United States I
LIFE SCIENCE . . . . .	4
BIO 105IN*	Environmental Biology
EARTH/SPACE SCIENCE or PHYSICAL SCIENCE	
Choose one of the following . . . . .	4-5
AST 101/101LB OR AST 101IN Solar System	
AST 102/102LB OR AST 102IN Stars, Galaxies, Universe	
GLG 101IN Introductory Geology I	
GLG 102IN Introductory Geology II	
CHM 121/121LB or CHM 121IN Chemistry and Society I	
CHM 130/130LB or CHM 130IN Fundamental Chemistry	
CHM 151/151LB or CHM 151IN General Chemistry I	
GEO 101 Physical Geography: Weather and Climate	
GEO 102 Physical Geography: Land Forms and Oceans	
PHY 115/115LB Physical Science	
PHY 121/121LB or PHY 121IN Introductory Physics I	
MATHEMATICS . . . . .	9 - 11
MAT 142*	Topics in College Mathematics (or any Math course numbered 151 or higher)
MAT 146*	Mathematics for Elementary Teachers I
MAT 147*	Mathematics for Elementary Teachers II

Major Code: **EDU**

Program Code:

**AOAEDUCATION**

Concentration Code: **EDUL**

*The Associate of Arts in Elementary Education (AAEE) prepares students for transfer into a university College of Education, meets the standards of Arizona Professional Teacher Standards, and fulfills the requirements for certification for paraprofessional instructional aides at the elementary school level.*

*Although all courses within this degree were designed to transfer to the Arizona universities, in particular the University of Arizona (UA), Northern Arizona University (NAU), and Arizona State University (ASU), the degree will also transfer to other public colleges and universities outside of Arizona and to private colleges and universities inside and outside of the State. Although transfer of these credits is guaranteed into UA, NAU, and ASU, admission into the Colleges of Education is not guaranteed where admission is selective and/or competitive. See your advisor, counselor, or the Education faculty to understand the application process for the Colleges of Education.*

*continued next page*

## Elementary Education — Associate of Arts for Transfer *(continued)*

CIVICS AND GOVERNMENT . . . . .	3
POS 220      National and State Constitutions	
ELEMENTARY SCIENCE ELECTIVES . . . . .	6
See Education Faculty Advisor for choice of courses	
SOCIAL AND BEHAVIORAL SCIENCE . . . . .	3
GEO 103      Cultural Geography	
SPEECH COMMUNICATION OR LANGUAGE . . . . .	3 - 5
Students planning on attending ASU or NAU may choose one of the following speech courses or a language course: . . . . .	
SPE 102      Introduction to Speech Communication	
SPE 110      Public Speaking . . . . .	
Students planning to attend the UA must complete a 4th semester language course, numbered 202, from the following: . . . . .	
CHI 202, FRE 202, GER 202, GRK 202, ITA 202, JPN 202, LAT 202, RUS 202, SPA 202 or SLG 202	
<b>Subtotal. . . . .</b>	<b>41-46</b>
<b>Total credits as displayed . . . . .</b>	<b>61-66§</b>

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

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

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



## Education — Teacher Certification Elementary or Secondary — Advanced Certificate for Direct Employment

Acceptance into the Program: A Baccalaureate Degree from an accredited post-secondary institution. This is a selective admission program. Contact Community Campus for additional admission requirements.

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

#### Basic Core

EDU 268*	Education Seminar .....	1
<b>Subtotal</b> .....		<b>1</b>

#### Foundations:

EDU 270*	Educational Technology and Curriculum Integration .....	3
EDU 271*	Introduction to Teaching .....	3
EDU 272*	Educational Psychology .....	3
EDU 273*	Introduction to Special Education .....	3
EDU 274*	ESL Foundations .....	3
EDU 275*	Classroom Management .....	3
<b>Subtotal</b> .....		<b>18</b>

#### Methods Courses:

EDU 281*	ESL Methods and Curriculum Development .....	3
EDU 290*	Internship .....	8
<b>Subtotal</b> .....		<b>11</b>

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

Choose one of the following options:

#### Teacher Certification — Elementary

CONCENTRATION CODE: **EDUE**

EDU 276*	Foundations of Reading Instructions .....	3
EDU 277*	Phonics Instruction in a Balanced Literacy Setting/Practicum .....	3
EDU 278*	Elementary Science Methods and Curriculum Development .....	3
EDU 279*	Elementary Math Methods and Curriculum Development .....	3
EDU 280*	Elementary Social Science Methods and Curriculum Development .....	3
<b>Subtotal</b> .....		<b>15</b>

#### Teacher Certification — Secondary

CONCENTRATION CODE: **EDUS**

Only one of the following courses must be completed

EDU282*	Science Methods in the Secondary Classroom .....	3
EDU283*	Math Methods in the Secondary Classroom .....	3
EDU284*	English/Language Arts in the Secondary Classroom .....	3
EDU285*	Secondary Teaching Methods .....	3
<b>Subtotal</b> .....		<b>3</b>

**Total credits as displayed** ..... **33-45**

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

Major Code: **EDU**

Program Code:

**CRDTEACHCERT**

Concentration Code:

**see options**

*This program is designed to prepare post-baccalaureate students with the skills, knowledge, and practice needed to receive teacher certification from the Arizona Department of Education. The program emphasizes a field-intensive, standards-based curriculum, which integrates technology, diversity, and the application of current theory to the preparation of future teachers. This program is approved by the Arizona Department of Education for teacher certification.*

*The Advanced Certificate in Education is designed to provide students with the skills and training necessary to receive State of Arizona K-12 Teacher Certification. Students have the option of completing an Elementary or Secondary Certification. The advanced certificate carries an admissions requirement of a Baccalaureate Degree from an accredited post-secondary institution.*



## Education Endorsement — ESL — Advanced Certificate for Direct Employment

Major Code: **EDE**

Program Code:

**CRDENDORSEA**

Concentration Code: **EDEE**

*This certificate will prepare K-12 teachers to become ESL classroom teachers, specialists, resource teachers, or otherwise provide ESL instruction. This certificate consists of 21 credits designed to meet specific State of Arizona, Department of Education requirements for the endorsement.*

### Acceptance Into the Program:

This program is designed to prepare students with the skills, knowledge, and practice needed to apply for ELS Endorsement from the State of Arizona, Department of Education. The program emphasizes a field-intensive, standards-based curriculum, which integrates technology, diversity, and the application of current ESL theory to the preparation of future teachers.

**Program Prerequisite:** A bachelor's degree is required.

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 . . . . .	3
EDU 244	Teaching Reading and Writing to ESL Students . . . . .	3
EDU 245	Linguistics . . . . .	3
EDU 246	Assessment of ESL Students . . . . .	3
EDU 247	Family/Community Involvement in ESL Student Instruction . . . . .	3
EDU 274*	ESL Foundations . . . . .	3
EDU 281*	ESL Methods and Curriculum Development . . . . .	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 — Advanced Certificate for Direct Employment

MAJOR CODE: **EDD**

Program Code:

**CRDENDORSEB**

Concentration Code:

**EDDM**

*This certificate helps prepare teachers currently holding Elementary Education or Secondary Education Certificates to meet specific State of Arizona, Department of Education Middle School Endorsement.*

### Acceptance Into the Program:

This program is designed to prepare students with the skills, knowledge, and practice needed to apply for Middle School Endorsement from the Arizona Department of Education. The program emphasizes a field-intensive, standards-based curriculum, which integrates technology, diversity, and the application of current middle-school theory to the preparation of future teachers. This program meets the requirements for Middle School Endorsement by the State of Arizona, Department of Education.

Students may receive a waiver for the Middle School Practicum requirement provided two years of full time middle school teaching experience can be documented.

**Program Prerequisite:** A bachelor's degree is required.

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 . . . . .	3
EDU 241	Middle School Curriculum and Instruction . . . . .	3
EDU 242	Middle Grade Practicum . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>9</b>

## Education Endorsement — K-12 Reading — Advanced Certificate for Direct Employment

### Acceptance Into the Program:

This program is designed to prepare students with the skills, knowledge, and practice needed to apply for K-12 Reading Endorsement from the State of Arizona, Department of Education. The program emphasizes a field-intensive, standards-based curriculum, which integrates technology, diversity, and the application of current Reading theory to the preparation of future teachers.

Program Prerequisite: A bachelor's degree is required.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
EDU 252	Reading, Diagnosis, Decoding and Remediation/Practicum . . . . .	3
EDU 276	Foundations of Reading Instruction . . . . .	3
<b>Subtotal</b> . . . . .		<b>9</b>

### Electives

Select 9 credits from the following list:

EDU 254	Literacy Development in the Primary Grades/Practicum . . . . .	3
EDU 255	Content Area Reading Middle and Secondary Schools/Practicum . . . . .	3
EDU 256	Literacy Development in the Middle School/Practicum . . . . .	3
EDU 257	Special Topics: Children's Literature and Literacy/Practicum . . . . .	3
EDU 269	Balanced Approach to Literacy/Practicum . . . . .	3
EDU 277	Phonics Instruction in a Balanced Literacy Setting/Practicum . . . . .	3
<b>Total credits as displayed</b> . . . . .		<b>15</b>

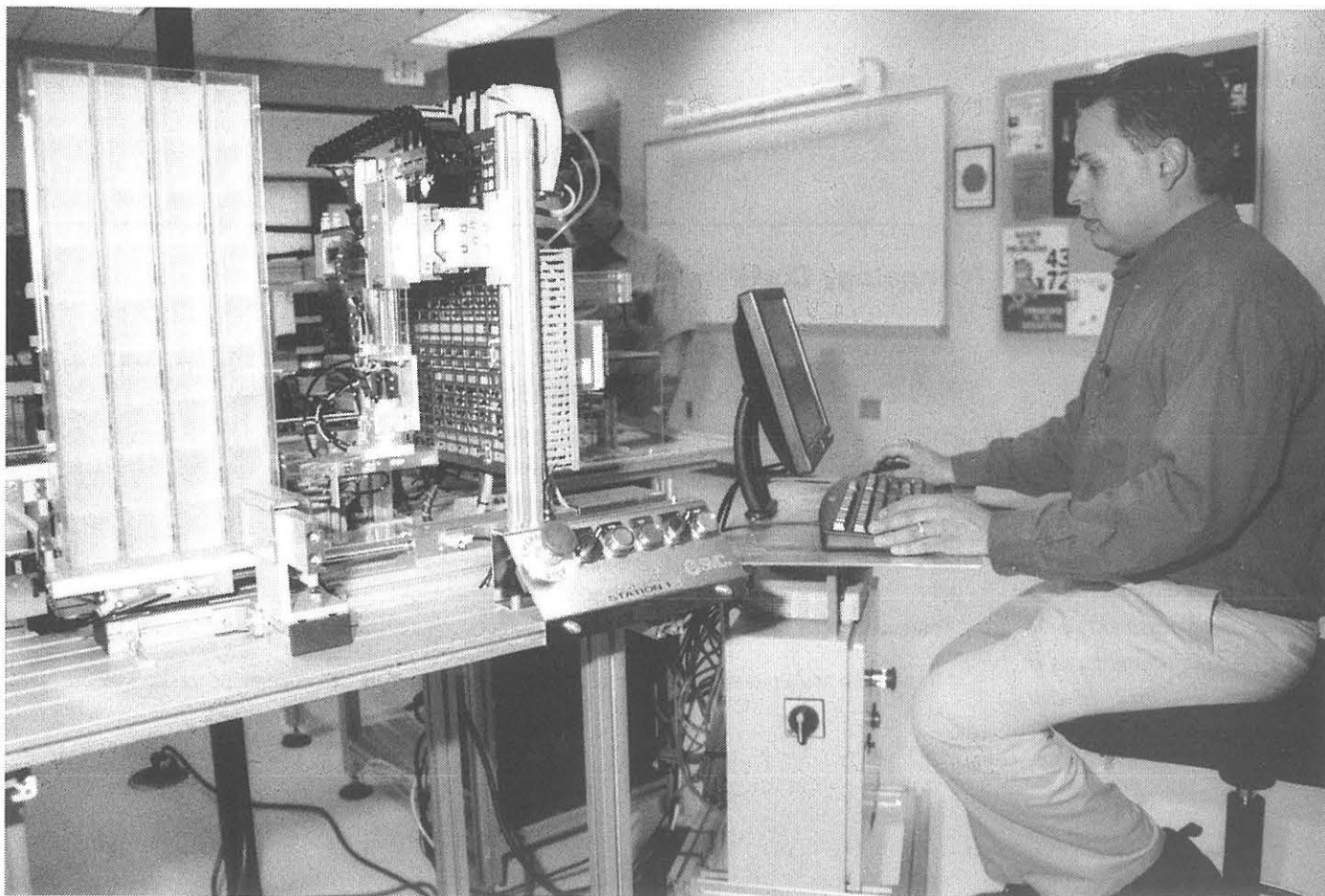
Major Code: **EDD**

Program Code:

**CRDENDORSEB**

Concentration Code: **EDDR**

*This certificate will prepare K-12 teachers to become reading specialists, reading consultants, and remedial reading teachers. This certificate consists of 15 credits of course work designed to meet the specific K-12 Reading Endorsement State of Arizona, Department of Education requirements.*



# Educational Technology

- Basic Educational Technology – Certificate
- Advanced Educational Technology Certificate

Pima College Community offers basic and advanced certificates in Educational Technology. The curricula are based on both International Society for Technology in Education (ISTE) and Arizona Technology in Education (AzSTE) standards that support the goals of the National Council for Accreditation of Teacher Education (NCATE).

Pima has worked cooperatively with local school districts to develop programs that not only allow teachers to become proficient in the use of educational technology, but also empower teachers to integrate technology into instruction and student activities for learning. These certificates also meet teachers' needs for professional development for salary increments and for state re-certification for current teachers.

## Basic Educational Technology — Certificate

Program Identification Code:  
**CRINTEDUTEC**

*The Basic Educational Technology Certificate is designed for those teachers who have limited knowledge of computers and educational technology or those who are new to the teaching field. Courses focus on basic computer skills and use of software including Microsoft Office applications, Web browsers, and e-mail.*

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 . . . . .	2
ETT 102	Introduction to Computer Applications in Education . . . . .	3
ETT 103	Introduction to the Internet in Education . . . . .	2
<b>Total credits as displayed . . . . .</b>		<b>7</b>

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

## Advanced Educational Technology Certificate

Program Identification Code:  
**CRTAEDUCTECH**

*The Advanced Educational Technology Certificate courses provide more concentrated skills in MS Office software and with multimedia, online learning and assessment applications. An additional focus is on integrating technology with the curriculum.*

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ETT 104	Teaching and Learning with Computer Applications . . . . .	3
ETT 105	Teaching and Learning with the Internet . . . . .	3
ETT 106	Teaching and Learning with Multimedia . . . . .	4
ETT 107	Education Technology Topics and Issues . . . . .	2-4
ETT 108	Educational Technology and Assessment . . . . .	3
ETT 109	Curriculum Integration with Technology . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>18-20</b>

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

# Emergency Medical Technology

## • Basic Emergency Medical Technology Certificate for Direct Employment

This program provides the theoretical and practical preparation to qualify graduates for the certificate for the Emergency Medical Technician (EMT-B). Students who wish to continue their studies in emergency medicine should review the Associate of Applied Science degree in Paramedicine. (See Workforce Programs section)

Clinical experience requirements for all levels of Emergency Medical Technology require immunization records for the following immunizations:

- 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)
- HBV – Hepatitis B vaccination series (HBV is encouraged for students who will be working as a healthcare provider, but is not required and can be declined)

Students entering the Basic Emergency Medical Technology class must also meet the following requirements:

- Must be 18 years of age at the start of the class.
- Possess CPR Certification at the Healthcare Provider Level with at least 1 year left in the certification period. CPR certification meeting these requirements is available at Pima Community College.
- Must be able to lift 125 lbs. alone and 250 lbs. with a partner.
- Must provide proof of personal medical insurance. Student health insurance is available through Pima Community College Student Services.
- Must receive a minimum score of 80 on the College Reading Assessment test.
- Students must meet with an advisor on the East Campus to complete a pre-enrollment worksheet prior to enrolling in the EMT-B Certificate.

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. Students may contact the Arizona Department of Health Services for additional information, though final verification may not be available until an application is submitted to AZDHS.

## Basic Emergency Medical Technology — Certificate for Direct Employment

### Acceptance Into the Program:

This EMT-B course is approved by the Arizona Department of Health Services, Bureau of Emergency Medical Services and by the National Registry of Emergency Medical Technicians. Students who complete the program will be eligible to apply for a certificate by Pima Community College. Upon successful completion of the program, the graduate is eligible to take the required state and National Registry of Emergency Medical Technicians examinations. Certification to work as an Emergency Medical Technician rests entirely with the Arizona Department of Health Services, Bureau of Emergency Medical Services. Requirements for entrance into the EMT program (see narrative) may also be found in Arizona Administrative Code, Title 9, Chapter 25, Article 308 (A) (B) (C) (D).

### Completion of college admission requirements.

Completion of acceptance criteria as established by the Arizona Department of Health Services and Pima Community College.

Class size is limited to 24 students by the State of Arizona regulations.

For course prerequisites and/or recommendations, check course section of this catalog.

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 . . . . .	9
<b>Total credits as displayed . . . . .</b>		<b>9</b>

Program Identification Code:  
**CRTEMEDTEC-B**



# Engineering

• Engineering — Associate of General Studies Degree

## Engineering — Associate of General Studies Degree

Major Code: **AGS**

Program Code:

**AGSGENRSTUDY**

Concentration Code: **AGSE**

*This program is designed to prepare the student to complete a four-year university engineering program. However, the student should not list the Associate of Science as his or her program identification code. The student should list General Studies (AGSGENRSTUDY) as his or her major. An Associate of Science degree requires the 35 credits of general education called the AGECE. Engineering students cannot complete an AGECE due to the number of engineering, math, and science sequences. Completing an AGECE may cause the student to need an additional year of study at the university.*

*Besides transferring to a university, engineering courses are also recognized by some employers when considering employees for advancement or applicants for entry-level technical positions.*

*The engineering courses provide a solid foundation in mathematics and physical science with some beginning applications in the analysis and design of engineering systems. The student is directed, with the guidance of an advisor or counselor, toward a specific engineering discipline (i.e., electrical, aerospace, mechanical, civil, etc.).*

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

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

Communication Requirement . . . . . †  
WRT 101 and WRT 102 satisfy this requirement

Analysis and Critical Thinking Requirement . . . . . †  
Support courses fulfill this requirement

Humanities and Social Science Requirement . . . . . †  
Support courses fulfill this requirement

Computer and Information Literacy Requirement . . . . . †  
Satisfied by core and support courses.

**Subtotal . . . . . 0**

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

CHM 151/151LB/151IN\* General Chemistry I . . . . . 5

ENG 102IN\* Problem-Solving and Engineering Design . . . . . 3

MAT 220\* Calculus I . . . . . 5

MAT 231\* Calculus II . . . . . 4

MAT 241\* Calculus III . . . . . 4

MAT 262\* Differential Equations . . . . . 3

**Subtotal . . . . . 24**

Communication:

WRT 101 English Composition I . . . . . 3

WRT 102 English Composition II . . . . . 3

**Subtotal . . . . . 6**

Math/Science:

PHY 210/210LB/IN\* Introductory Mechanics . . . . . 5

PHY 216/216LB/IN\* Introductory Electricity and Magnetism . . . . . 5

**Subtotal . . . . . 10**

Humanities:

Complete one course from the following. Fulfills the general education Intensive Writing and Critical Inquiry (I) and the Global Awareness (G) requirements.

ANT 112; ART 130, 131; HIS 101, 102, 122, 160, 161; HUM 251, 252, 253; LIT 261, 266, 267

**Subtotal . . . . . 3**

Social and Behavioral Science:

Complete one course from the following. Fulfills the general education Cultural Diversity (C) requirement.

ANT 112, 127, 202, 205, 206; ARC 205; HIS 105, 122, 124, 127, 141, 142, 147, 148, 150, 160, 161, 180, 253, 254; HUM 260; POS 110, 130, 140; PSY 215, 216; REL 200; SOC 101, 103, 120, 201, 204, 215

**Subtotal . . . . . 3**

## Engineering Major Options

Complete all the courses listed with your major unless there are more than 18 credits listed. If there are more than 18 credits of courses listed, see your engineering advisor for the selection of courses.

Aerospace Engineering	
CHM 152/152LB/IN; ENG 210, 220, 230, 232, 260. ....	18
Agricultural & Biosystems	
CHM 152/152LB/IN; ENG 170IN or 275IN, 210, 220, 230, 232. ....	20
Chemical Engineering	
CHM152/152LB/IN, 235/235LB, 236/236LB, ENG 170IN. ....	18
Civil Engineering	
CHM 152/152LB/IN; ENG 120IN, 130IN, 210, 218, 230, 232. ....	2
Computer Engineering	
ENG 274IN, 275IN, 282IN; MAT 227; PHY 221. ....	18
Electrical Engineering	
ENG 274IN, 275IN, 282IN; PHY 221. ....	14
Engineering Math	
CHM 152/152LB/IN; ENG 170IN, 210, 220, 232, 250, 260; PHY 221. ....	23
Engineering Physics	
CHM 152/152LB/IN; ENG 170IN or 275IN, 210, 230, 260; PHY 221/221LB/IN. ....	21
Geological Engineering	
CHM 152/152LB/IN; ENG 170IN or 275IN, 210, 230; GLG 101IN; PHY 221. ....	18
Environmental Hydrology & Water Resources	
BIO 105IN; CHM 152/152LB/IN; ENG 170IN; GLG 101IN; MAT 252; PHY 221. ....	22
Industrial Engineering	
CHM 152/152LB/IN; ENG 250, 275IN. ....	11
Materials Science & Engineering	
ENG 170IN or 275IN. ....	3
Mechanical Engineering	
CHM 152/152LB/IN; ENG 120IN, 210, 220, 230, 232, 260. ....	22
Mining Engineering	
CHM 152/152LB/IN; ENG 130IN, 170IN, 210, 218, 230, 260; GLG 101IN. ....	27
Optical Engineering	
ENG 274IN or 275IN, 282IN. ....	8
Systems Engineering	
CHM 152/152LB/IN; ENG 170IN, 250, 260. ....	14
<b>Subtotal. ....</b>	<b>3-18</b>

## Electives

For some majors, it is necessary to complete additional transferable electives in order to complete the minimum of 60 credits for this degree. If you wish to complete the AGECS and the Associate of Science degree, complete an Art list course and another Social and Behavioral Science course from the AGECS list. See an engineering advisor for the selection of these courses.

**Subtotal. .... 0-15**

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

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

*The engineering program presumes an aptitude for mathematical analysis and a strong high school background in pre-calculus mathematics and physics. Students with deficiencies in these areas should take appropriate prerequisite courses prior to beginning the engineering program. Since most of the courses in the program must be taken sequentially, it is important for the student to maintain contact with an advisor or counselor to assure a logical progression and to keep abreast of frequent program modifications resulting from technological developments.*

## English

A student planning on obtaining a degree with an option in English should follow the Associate of Arts Degree for Transfer in Liberal Arts. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Program Identification Code:  
**AOALIBRALART**

## Fire Science

- Fire Science — Certificate for Direct Employment
- Fire Science — Associate of Applied Science Degree for Direct Employment

### Fire Science — Certificate for Direct Employment

Program Identification Code:  
**CRTFIRESICIEN**

*This certificate provides the foundation for the Associate of Applied Science Degree in Fire Science.*

*This program transfers to ASU-East and is offered in Tucson as a Bachelor of Applied Science Degree in Fire Service Management.*

This certificate represents the completion of the state of Arizona requirements for certification as a Firefighter I and Firefighter II. Certificate prerequisites are EMT 100, FSC 153, FSC 160.

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 . . . . .	3
FSC 149	Fire Operations I . . . . .	4
FSC 150*	Fire Operations II . . . . .	4
FSC 151	Introduction to Fire Science . . . . .	3
FSC 167	Rescue Practices for the Fire Service . . . . .	3
FSC 173	Records and Reports . . . . .	1
<b>Total credits as displayed . . . . .</b>		<b>18</b>

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

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

Program Identification Code:  
**AASFIRESICIEN**

*This program emphasizes professional firefighting skills related to the everyday demands of the profession, management of situations, and coping with change and challenge in the field. The program is designed for both professionals already serving as firefighters and as a preparatory program for those who seek firefighting as a career. It also prepares the student to move toward managerial and command positions.*

**Program Prerequisite 1:** EMT 100

**Program Prerequisite 2:** Successful completion of a recognized firefighting academy, or completion of the following courses with a grade of C or better: FSC 149, 150, 151, 167

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

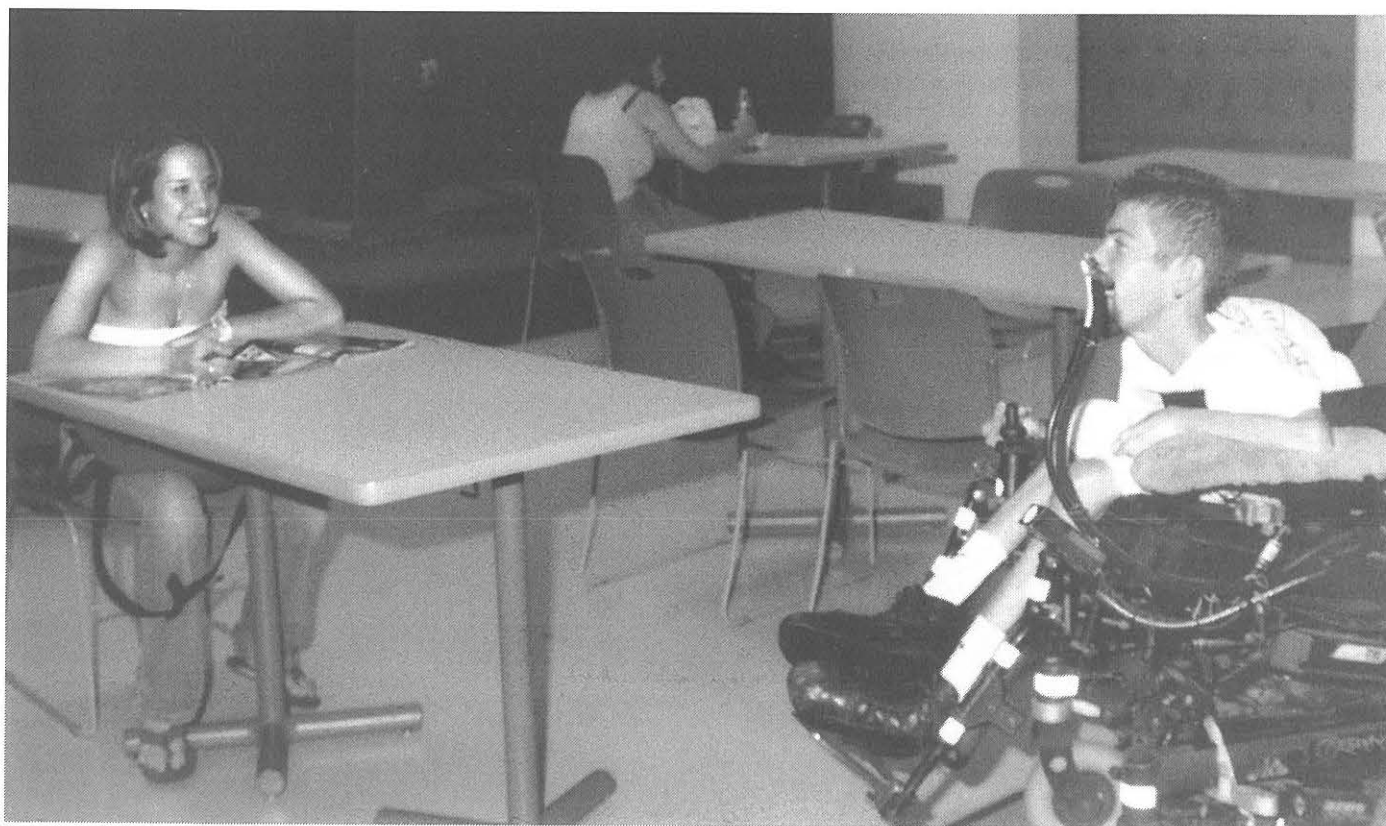
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101 and 102 fulfill this requirement.	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	3
STU 230 fulfills 3 credits for this requirement.	
Select 3 more credits from the General Education section, see page 49	
Computer and Information Literacy Requirement . . . . .	†
FSC 189 fulfills this requirement.	
<b>Subtotal . . . . .</b>	<b>9</b>

Course Number	Course Title	Credit Hours
<b>Completion of a firefighting academy program or program prerequisites (see narrative).</b>		<b>21-23</b>
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
FSC 152	Fundamentals of Fire Prevention	3
FSC 153	Hazardous Materials	2
FSC 160	Wildland Firefighting	2
FSC 162*	Hydraulics and Fire Suppression	3
FSC 163*	Fire Apparatus and Equipment	3
FSC 164*	Fire Protection Systems	3
FSC 165	Building Construction for Fire Protection	3
FSC 166*	Fire Suppression, Strategy and Tactics	3
FSC 175	Introduction to Fire Investigation: Origin and Recognition of Arson	3
FSC 189	Current Issues in Fire Science	2
<b>Subtotal</b>		<b>27</b>
<b>Required Support Courses</b>		
STU 230	Dynamics of Leadership	3
WRT 101*	Writing I	3
WRT 102*	Writing II	3
<b>Subtotal</b>		<b>9</b>
<b>Total credits</b>		<b>66-68§</b>

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

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

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





## Fitness and Sport Sciences

- Fitness and Sport Sciences — Coaching Certificate for Direct Employment
- Fitness Professional Certificate
- Physical Education — Emphasis for Transfer
- Exercise Science or Exercise and Wellness — Emphasis for Transfer

The Fitness & Sport Sciences (FSS) department offers the following direct employment certificates and degrees for transfer: Coaching Certificate; Fitness Professional Certificate; Associates of Arts Liberal Art Degree for Transfer, with an emphasis in Physical Education; Associates of Liberal Arts Degree for Transfer, with an emphasis in Exercise Sciences or Exercise and Wellness.

The FSS department also offers a wide selection of courses ranging from individualized activities, such as aerobics, martial arts, weight training, racquet sports, track and field, and swimming; to team sports, such as basketball, volleyball, soccer, baseball, and softball. Specialized courses are also available for senior conditioning and athletic conditioning. Activity courses are listed in this catalog in the 100-level under the following prefixes: FSS - Fitness and Sport Sciences, FAR - Fitness and Recreation, and DNC - Dance. Students are encouraged to participate in and enjoy the activity courses while attending Pima Community College.

Students interested in pursuing a career in Physical Education are advised to complete the **Associate of Arts - Liberal Arts degree for Transfer** with an emphasis in the courses listed below. For further information on requirements for a degree in Education from a state university, please see the Education display in this catalog and contact an advisor for specific recommendations and transfer guide for the university of your choice.

Students interested in pursuing a career in Exercise Science (ASU or NAU) or Exercise and Wellness (ASU-East) are advised to complete the **Associate of Arts - Liberal Arts degree for Transfer**. Please note that ASU and NAU each require more science than is included in the Liberal Arts degree, but many of those courses can be used to fulfill the Liberal Arts requirements. Also, they require different courses. For further information on requirements for one of these degrees at ASU or NAU, please contact an advisor for a transfer guide or see an FSS advisor.

The FSS department requires that students meet the level of WRT 100 - Writing Fundamental, or WRT 106 - Writing Fundamentals for Non-Native Speakers of English, before they enroll in the FSS courses listed in all of the programs that follow.

### Coaching Certificate:

The State of Arizona requires valid certification in First Aid and CPR, 250 hours of verified coaching experience in the sport to be coached, and 15 semester hours in coursework from an accredited institution. Pima was the first community college in the state to obtain a state-approved curriculum for coaches. Students interested in coaching can enroll in courses that provide national coaching certification with either the American Sport Education Program or the National Federation of Interscholastic Coaches Association. This certification is applicable to either individual or team sports.

### Fitness Professional Certificate:

Students interested in pursuing a career as personal trainers or fitness professionals may be hired as employees or independent contractors. While obtaining a certificate or license is not required by law, passing a nationally recognized certification is required for professional liability insurance, which is considered a job requirement according to all reputable certifying institutions. Students successfully completing the core of courses below have been successful in their first attempt at passing the American Council on Exercise (ACE) or the National Strength and Conditioning Association (NSCA) personal trainer examinations at a rate substantially greater than the national average (over 85% for Pima students compared to under 65% nationally).

## Fitness and Sport Sciences — Coaching 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>		
FSS 199*	Co-op Related Class in FSS . . . . .	1
FSS 199WK*	Co-op Related Work in FSS . . . . .	3
FSS 238*	Introduction to Sports Injury Management . . . . .	2
FSS 250	Sport First Aid	
or HED 140	First Aid and Cardiopulmonary Resuscitation . . . . .	1
FSS 271*	Adolescent Sports Psychology . . . . .	3
FSS 273*	Sport Physiology . . . . .	3**
FSS 285*	Principles of Athletic Coaching . . . . .	1-3***
<b>Subtotal . . . . .</b>		<b>14-16</b>
*** If FSS 285 is taken for one credit, select at least two credits from the following list:		
FSS 205	Theory of Coaching Baseball . . . . .	2
FSS 210	Professional Activities: Baseball . . . . .	2
FSS 213*	Professional Activities: Basketball . . . . .	2
FSS 218*	Professional Activities: Weight Training . . . . .	2
FSS 225*	Professional Activities: Soccer . . . . .	2
FSS 227*	Professional Activities: Softball . . . . .	2
FSS 230*	Professional Activities: Tennis . . . . .	2
FSS 231*	Professional Activities: Track and Field . . . . .	2
FSS 232*	Professional Activities: Volleyball . . . . .	2
FSS 238*	Introduction to Sports Injury Management . . . . .	2
<b>Subtotal . . . . .</b>		<b>2</b>
** One of the following courses can be substituted for FSS 273:		
BIO 160IN	Introduction to Human Anatomy and Physiology . . . . .	4
BIO 201IN*	Human Anatomy and Physiology I . . . . .	4
BIO 202IN*	Human Anatomy and Physiology II . . . . .	4
<b>Total credits as displayed . . . . .</b>		<b>16-19</b>

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

Program Identification Code:  
**CRTCOACHING**

*This program prepares students for certification through the Arizona Department of Education to coach at the high school level in this state. The curriculum also prepares students for certification through the National Federation Interscholastic Coaches Education Program (NFICEP) and the American Sport Education Program (ASEP) supported by the Arizona Interscholastic Association. Recognized in neighboring states of California, Colorado, New Mexico, Nevada and Utah, the ASEP/NFICEP programs are currently accepted in a total of 34 states as the method of certifying coaches for employment.*

## Fitness Professional Certificate

Program Identification Code:  
**CRTFITNESS**

*Successful completion of this program will prepare students for national certification exams and employment in the rapidly expanding fitness profession in varied business settings. Program competencies require that students have or concurrently attain skill proficiency levels of REA 112, MAT 086, and WRT 101. Students must show proof of CPR and First Aid Certification valid through the completion date of this program. After completion of a majority of the coursework, students will participate in two work-related experiences: one in the Fitness and Conditioning Center and one in an approved club or agency in the greater Tucson area.*

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 . . . . .	2
FSS 218	Professional Activities: Weight Training . . . . .	2
FSS 234	Fundamentals of Exercise Science . . . . .	1
FSN 154 or FSS 241*	Nutrition Nutrition for Exercise and Sport . . . . .	3
FSS 276*	Individualized Exercise for Wellness . . . . .	3
FSS 277*	Personal Trainer: Cardiovascular Endurance/Body Composition . . . . .	3
FSS 281*	Personal Trainer Exam Preparation . . . . .	1
FSS 299*	Co-op Related Class for the Fitness Professional . . . . .	1
FSS 299WK*	Co-op Work in FSS . . . . .	2
<b>Subtotal . . . . .</b>		<b>17</b>
<b>Required Support/Elective Courses</b>		
Select 3 credits from the following list:		
FSS 236*	Communication and Exercise Adherence . . . . .	1
FSS 238*	Introduction to Sports Injury Management. . . . .	2
FSS 260	Business Practices for the Personal Trainer. . . . .	1
FSS 270*	Advanced Principles of Athletic Conditioning . . . . .	1
FSS 280*	Lifestyle and Weight Management Consultant . . . . .	1
HED 136	Introduction to Health Sciences . . . . .	3
<b>Subtotal . . . . .</b>		<b>3</b>
<b>Total credits as displayed . . . . .</b>		<b>20</b>

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

## Physical Education — Emphasis for Transfer

Use Program ID Code  
for Liberal Arts:  
**AOALIBRALARTS**

The Fitness and Sports Science Department offers a program that prepares students to transfer into a physical education degree program at any one of the three state universities. Students are advised to complete the AGECA and the Associate of Arts in Liberal Arts (Program Identification Code: AOALIBRALART). Some of the courses in the list below will also be applicable to the AGECA.

At the University of Arizona, students will be required to complete at least 8 credit hours and five separate courses under the heading "Professional Activities." At least 3 of those courses must be completed at the U of A, but the rest may be completed at Pima. Contact the university you intend to transfer to for complete application and program requirements.

### Complete the following courses:

FSS 279	Motor Development
FSS 286	Sports Officiating
FSS 288	History and Philosophy of Sport and Physical Education
BIO 201IN*	Human Anatomy and Physiology I
BIO 202IN*	Human Anatomy and Physiology II
MAT 151	College Algebra
PSY 101	Introduction to Psychology
POS 220	National and State Constitutions

### Language

The University of Arizona (UA) requires completion of a second language at the second-semester level. Arizona State University (ASU) requires completion of a language at the fourth-semester level. Complete two semesters of a second language. If you transfer to ASU, two more semesters will be required. Complete two courses from one the following sequences:

CHI 101, 102; FRE 101, 102; GER 101, 102; GRK 101, 102; ITA 101, 102; JPN 101, 102;  
RUS 101, 102; SLG 101, 102; SPA 101, 102

### Activity Courses

Select at least 3 courses for 5 credit hours from the following:

FSS 208	Professional Activities: Aerobics and Group Fitness
FSS 210	Professional Activities: Baseball
FSS 213	Professional Activities: Basketball
FSS 218	Professional Activities: Weight Training
FSS 223	Professional Activities: Racquetball
FSS 224	Professional Activities: Self-defense
FSS 225	Professional Activities: Soccer
FSS 227	Professional Activities: Softball
FSS 230	Professional Activities: Tennis
FSS 231	Professional Activities: Track and Field
FSS 232	Professional Activities: Volleyball

### Electives

Complete additional FSS or any transferable electives in order to complete the minimum of 60 credits for the degree. For students transferring to ASU, the additional second language courses may be completed in this category. See an FSS advisor for the selection of these courses.



## Exercise Science or Exercise and Wellness — Emphasis for Transfer

The Fitness and Sports Science Department offers a program that prepares the student to transfer to Arizona State University, with an emphasis in either Exercise Sciences or Exercise and Wellness, or to Northern Arizona University for a degree in Exercise Sciences. Students are advised to complete the AGEC-A and the Associate of Arts in Liberal Arts. Some of the courses in the list below will also be applicable to the AGEC-A. **(Use Program ID Code: AOALIBRALART)**

### Complete the following courses:

BIO 201IN*	Human Anatomy and Physiology I
BIO 202IN*	Human Anatomy and Physiology II
MAT 151	College Algebra
PSY 101	Introduction to Psychology
PHY 121	Introductory Physics I
HED 136	Introduction to Health Sciences
FSS 218	Professional Activities: Weight Training
FSS 238	Introduction to Sports Injury Management

### Language:

ASU requires completion of a second language at the fourth-semester level. Complete one of the following sequences:  
CHI 101, 102, 201, 202; FRE 101, 102, 201, 202; GER 101, 102, 201, 202; GRK 101, 102, 201, 202; ITA 101, 102, 201, 202;  
JPN 101, 102, 201, 202; RUS 101, 102, 201, 202; SLG 101, 102, 201, 202; SPA 101, 102, 201, 202

### Electives:

Complete additional FSS or any transferable electives in order to complete the minimum of 60 credits for this degree. See an FSS advisor for the selection of these courses.



# Forensics and Crime Scene Technology

- Crime Scene Management — Certificate for Direct Employment

## Crime Scene Management — Certificate for Direct Employment

Program Identification Code:  
**CRTFORENSICS**

*Successful completion of the Crime Scene Management program satisfies the academic requirements for certification by the International Association for Identification as a Crime Scene Technician/Analyst, Levels I-III.*

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
CHM 128/128LB/IN*	Forensic Chemistry . . . . .	4
CSM 100*	Introduction to Photographic Equipment and Procedures . . . . .	1
CSM 101*	Criminalistics. . . . .	2
CSM 102*	Crime Scene Photography . . . . .	1
CSM 103*	Latent Processing . . . . .	0.5
CSM 104*	Fingerprint Identification. . . . .	3
CSM 105*	Blood Pattern Documentation . . . . .	0.5
CSM 106*	Ballistics. . . . .	0.5
CSM 107*	Courtroom Testimony and Report Writing . . . . .	0.5
<b>Subtotal</b>		<b>13</b>
<b>Required Support Courses - A grade of C or better is required for graduation.</b>		
AJS 101	Introduction to Administration of Justice Systems . . . . .	3
AJS 124 or LEN105	Ethics and the Administration of Justice Ethics and Leadership in Law Enforcement. . . . .	3
AJS 201	Rules of Evidence. . . . .	3
<b>Subtotal</b>		<b>9</b>
<b>Total credits as displayed</b>		<b>22</b>

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



## General Studies

### • General Studies — Associate of General Studies Degree

A general studies program degree is for students who wish to pursue a uniquely designed associate degree. Courses may be chosen from a variety of subject areas to fit into a program of study arranged by the student and a faculty advisor or counselor. An associate of general studies degree will be granted when at least 60 credit hours of study at the 100 level or higher are completed given the fulfillment of the college reading requirement and the fulfillment of the college general education requirements. (See requirements under the General Education section.) Please see an advisor or counselor.

If the goal of the student is to transfer to a four-year institution, the student may have to complete additional freshman and sophomore level courses beyond the general studies degree program in order to become a junior at the four-year institution. The student who does have a fairly clear transfer goal may be better served by a specific associate degree listed within this catalog. An additional option for transfer students who have not determined a major/career is the Liberal Arts and Sciences degree program in this catalog. Please see an advisor or counselor.

If the goal of the student is direct employment, the general studies degree program may be used for exploration. The student may have to complete additional courses in the occupational area necessary for employment and advancement. Please see an advisor or counselor.

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

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

Communication Requirement . . . . . 6

See General Education section, page 49

Analysis and Critical Thinking Requirement . . . . . 6

See General Education section, Page 49

Humanities and Social Science Requirement . . . . . 6

See General Education section, Page 49 . . . . .

Computer and Information Literacy Requirement . . . . . 1-3

See General Education section, Page 49

**Subtotal. . . . . 19-21**

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

ELEC	Complete courses numbered 100 or better. . . . .	39-41
	See an advisor to develop an education plan.	

**Subtotal. . . . . 39-41**

**Total credits as displayed . . . . . 60§**

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

Major Code: **AGS**

Program Code:

**AGSGENRSTUDY**

## Geology

A student planning on obtaining a degree with an option in Geology should follow the **Associate of Science Degree for Transfer**. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Program Identification Code:

**AOSSCIENCE**

## History

A student planning on obtaining a degree with an option in History should follow the **Associate of Arts Degree for Transfer in Liberal Arts**. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Program Identification Code:  
**AOALIBRALART**

## Histotechnology

- Histotechnician — Certificate for Direct Employment
- Histotechnician — Associate of Applied Science Degree for Direct Employment

The Pima Community College West Campus offers a Certificate for Direct Employment and an Associates of Applied Science Degree for Histotechnicians. The curricula are based on the requirements of the National Accrediting Agency for Clinical Laboratory Scientists (NAA-CLS) and will help students prepare for the registry examinations of the American Society for Clinical Pathologists (ASCP).

Pima has worked cooperatively with local industry to develop a premier program in which students will train in research, industrial and clinical settings and develop a high level of proficiency to help fill the nation-wide high vacancy rate in this profession.

Students entering the Histotechnician program must meet the following requirements:

- High School diploma or GED
- Admission to Pima Community College
- One course from high school or college in Math, Chemistry and Biology
- BIO 156 or a grade of C or better on the assessment test

### Histotechnician — Certificate for Direct Employment

Program Identification Code:  
**CRTHISTOTECH**

*These courses provide theoretical and practical preparation for its program graduates. Graduates of this program assist pathologists and dermatologists in hospitals and private practice; they also work in academic, industrial and government settings in research and development, customer support and sales. This program offers accelerated study for persons working in this industry to expand their skills and employment opportunities. It enables students to rapidly prepare for the American Society of Clinical Pathologists licensure examinations.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	3
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>6</b>

Course Number	Course Title	Credit Hours
<b>Required Core Course - A grade of C or better is required for graduation.</b>		
BIO 110	Techniques and Mathematics for the Laboratory . . . . .	2
BIO 210*	Histology . . . . .	4
HTP 100*	Histotechniques I . . . . .	3
HTP 200*	Histotechniques II . . . . .	3
HTP 299*	Co-op Related Class in HTP . . . . .	1
HTP 299WK*	Co-op Work in HTP . . . . .	3
HTP 299WK*	Co-op Work in HTP . . . . .	3
HTP 299WK*	Co-op Work in HTP . . . . .	3
HTP 299WK*	Co-op Work in HTP . . . . .	3
<b>Subtotal . . . . .</b>		<b>25</b>
<b>Total credits as displayed . . . . .</b>		<b>31</b>

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

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	†
Core and Support courses fulfill this requirement	
Humanities and Social Science Requirement . . . . .	3
BIO 250 fulfills part of this requirement.	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CSA 101 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.

OAP 162	Medical Terms I . . . . .	3
BIO 110	Techniques and Mathematics for the Laboratory . . . . .	2
BIO 210*	Histology . . . . .	4
BIO 250	Biomedical Ethics . . . . .	3
HTP 100*	Histotechniques I . . . . .	3
HTP 200*	Histotechniques II . . . . .	3
HTP 299*	Co-op Related Class in HTP . . . . .	1
HTP 299WK*	Co-op Work in HTP . . . . .	3
HTP 299WK*	Co-op Work in HTP . . . . .	3
HTP 299WK*	Co-op Work in HTP . . . . .	3
HTP 299WK*	Co-op Work in HTP . . . . .	3
<b>Subtotal . . . . .</b>		<b>31</b>

### Required Support Course

BIO 201IN*	Human Anatomy and Physiology I . . . . .	4
BIO 202IN*	Human Anatomy and Physiology II . . . . .	4
BIO 205IN*	Microbiology . . . . .	4
CHM 130/130LB/IN	Fundamental Chemistry . . . . .	5
CSA 101	Computer Fundamentals . . . . .	3
MAT 122*	Intermediate Algebra . . . . .	3
<b>Subtotal . . . . .</b>		<b>23</b>

**Total credits as displayed . . . . . 63**

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

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

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

Program Identification Code:  
**AASHISTOTECH**

*This curriculum provides theoretical and practical preparation for its program graduates. Graduates of this program assist pathologists and dermatologists in hospitals and private practice; they also work in academic, industrial and government settings in research and development, customer support and sales. The program consists of four semesters. Graduates will be prepared for, and eligible to sit for the American Society of Clinical Pathologists licensure examinations.*



# Hospitality/Tourism

- Hospitality — Associate of Arts Degree for Transfer
- Travel Industry Operations Certificate for Direct Employment
- Travel Industry Operations Options — Tourism — Associate of Applied Science Degree for Direct Employment

This program area prepares students for service in the broad-based hospitality/tourism industry. Tucson's rapid growth affords many opportunities within this industry which encompasses hotels, motels, clubs, food and beverage establishments, and tourist services. Career opportunities are excellent as nearly one out of every six jobs in Arizona is related to the hospitality industry.

The program options are designed to prepare students to enter the hospitality/tourism work force and/or to update people already employed in the industry. The program options include an Associate of Arts Degree for Transfer, Recreation and Tourism Management-Associate of Arts Degree for Transfer and Associate of Applied Science Degrees in Hospitality Management, Travel Industry Operations, and Culinary Arts. The Hospitality Management Degree offers seven specialty areas from which the student may choose one of the following options: Housekeeping Management, Hotel/Resort Management, Food and Beverage Management, Sales and Convention Service Management, Accounting Management, Human Resources Management, and Language Specialty. Faculty advisors or counselors in the program area are located at the Community Campus.

## Hospitality — Associate of Arts Degree for Transfer

Program Identification Code:  
**AOAHSPTALITY**

*Northern Arizona University School of Hotel and Restaurant Management has a partnership agreement with Pima Community College to offer a Bachelor's degree in the Tucson area. A stipulation of this agreement provides a waiver of 12 upper division credit hours for liberal studies providing the student completes the Associate of Arts Degree for Transfer with Pima Community College. Students interested in the bachelor's degree in Hotel and Restaurant Management should see an NAU advisor or counselor located at the Downtown Campus.*

### Entrance Requirements:

Entrance requirements for the Associate of Arts Degree for Transfer are: REA 112, WRT 100 or assessment at WRT 101, MAT 122 or assessment at MAT 151, and STU 101.

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6
See General Education section, page 50	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
See General Education section, page 50	
Social and Behavioral Sciences . . . . .	3
ECN 200 fulfills 3 credits of this requirement.	
See General Education section, page 50 for a non-ECN course.	
Other Requirements. . . . .	†
Second language support courses fulfill this requirement.	
Special Requirements	
The I, C, and G requirements should be fulfilled by courses in the above categories.	
<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>		
HRM 100	Introduction to Hospitality Industry. . . . .	3
HRM 101	Front Office Procedures . . . . .	3
HRM 150	Executive Housekeeping I . . . . .	3
<b>Subtotal . . . . .</b>		<b>9</b>

**Required Support Courses**

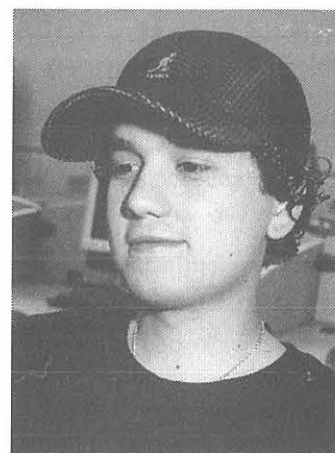
ACC 101	Financial Accounting	3
CSA 101	Computer Fundamentals	3
CUL 101	Principles of Restaurant Operations	3
CUL 130	Hot Foods I	3
ECN 200*	Basic Economic Principles	3
Second Language Requirement		8
Completion of two semesters of a language course numbered 101, 102*, 201* or 202*		
Hospitality Elective		3
Complete 3 credits of transferable electives from the Hospitality transfer guide or any transferable course.		
<b>Subtotal</b>		<b>26</b>

**Total credits as displayed** . . . . . **61**

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

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

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



## Travel Industry Operations Options

### Travel Industry Operations — Certificate for Direct Employment

Entry requirements are OAP 111A or typing proficiency, and CSA 180 or 181 or Windows proficiency

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

TVL 101	Introduction to the Travel Industry	3
TVL 102	Computerized Reservation Systems I	3
TVL 103	Geography for Travel Professionals I	3
TVL 109	Survey of Leisure Products	3
TVL 121*	Travel Sales	3
TVL 203*	Computerized Reservation Systems II: Fares and Ticketing	3
<b>Total credits as displayed</b>		<b>18</b>

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

Program Identification Code:  
**CRTRVLINDUS**

*This certificate program is designed to prepare students for travel agency management trainees. It includes all the course work in cost-effective operations, training techniques, current developments in the travel industry, and computer applications.*

## Travel Industry Operations Options — Tourism — Associate of Applied Science Degree for Direct Employment

The travel and tourism industry is an exciting, fast-paced, customer service and sales oriented profession. Over the course of the program, the student is trained in essential elements of the industry including: sales and marketing, computer application including ticketing and booking procedures, leadership and communication skills, destination development and geography.

Entry requirements are OAP 111A or typing proficiency, and CSA 180 or 181 or Windows proficiency

Program Identification Code:  
**AASTOURDESDV**

*This degree prepares students for entry into either Tourism Operations or Arizona Tour Guide.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CSA 101 fulfills this requirement.	
<b>Subtotal . . . . .</b>	<b>18</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

TVL 101	Introduction to the Travel Industry . . . . .	3
TVL 102	Computerized Reservation Systems I . . . . .	3
TVL 103	Geography for Travel Professionals I . . . . .	3
TVL 109	Survey of Leisure Products . . . . .	3
TVL 121*	Travel Sales . . . . .	3
TVL 203*	Computerized Reservation Systems II: Fares and Ticketing . . . . .	3
<b>Subtotal . . . . .</b>		<b>18</b>

### Required Support Courses

CSA 101	Computer Fundamentals . . . . .	3
HRM 199*	Co-op Related Class in HRM . . . . .	1
HRM 199WK*	Co-op Work in HRM . . . . .	3
LANGUAGE	First semester of a language sequence . . . . .	4-5
(American Sign Language included/Spanish recommended)		
<b>Subtotal . . . . .</b>		<b>11-12</b>

Choose one of the following options: . . . . . 20-21  
Department chair/program advisor approval is recommended in the selection of the program option:

### Tourism Operations

TVL 104	Geography for Travel Professionals II . . . . .	3
TVL 205*	Tourism Marketing . . . . .	3
TVL 210*	Leisure Delivery System . . . . .	3
TVL 211*	Tour Group Development . . . . .	3
TVL 214*	Destination Development . . . . .	3
TVL 250	Leadership in Recreation and Tourism . . . . .	3
ELECT	Hospitality/Tourism Electives . . . . .	3

Complete three credit hours from the following list:  
HRM 120, 130, 211

**Arizona Tour Guide**

GLG 101IN	Introductory Geology I: Physical Geology . . . . .	4
GLG 102IN*	Introductory Geology II :Historical Geology . . . . .	4
GLG 280IN*	Geology of Arizona . . . . .	3
HED 140	First Aid and Cardiopulmonary Resuscitation . . . . .	1
HIS 147	History of Arizona . . . . .	3
TVL 205	Tourism Marketing . . . . .	3
TVL 211	Tour Group Development . . . . .	3
TVL 214	Destination Development . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>67-68§</b>

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

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

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

## Human Resources

- Human Resources — Certificate for Direct Employment

### Human Resources — 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 Resource Law . . . . .	3
HRS 103	Benefits and Compensation . . . . .	3
HRS 104	Job Requirements, Recruitment, and Personnel Selection . . . . .	3
HRS 105	Training and Development . . . . .	3
HRS 106	Labor Relations . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>18</b>

Program identification code:  
**CRTHUMANRES**

*The Human Resources certificate is designed for individuals currently employed or interested in exploring Human Resources as a career. The courses explore principles and practices associated with Human Resources as well as economic, technological, social, and legal issues. Each course is modularized to facilitate the learning style in individual students.*



# Interior Design

- Interior Design — Associate of Applied Science Degree for Direct Employment
- Interior Design — Associate of Arts Degree for Transfer

## Interior Design — Associate of Applied Science Degree for Direct Employment

Program Identification Code:  
**AASDESIGN**

*The Interior Design Associate of Applied Science Degree provides the student with the knowledge and skills of the profession including basic design, color theory, history of architecture and furniture, interior materials, business procedures, computer aided design and drafting, and presentation techniques. Studio projects allow the student to identify, research, and solve both residential and contract design issues.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	3
DES 213 fulfills 3 credits of this requirement.	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CAD 101 fulfills 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.

DES 100	Introduction to Interior Design . . . . .	3
DES 111	Fundamentals of Design. . . . .	3
DES 122	Graphic Communication I . . . . .	3
DES 152	Color and Lighting Theory . . . . .	3
DES 155	Space Planning I . . . . .	3
DES 160	Fabrics for Interiors. . . . .	3
DES 212	History of Interior Architecture and Furniture from the Egyptian Period to 1900 . . . . .	3
DES 213	History of Interior Architecture and Furniture from 1900 to the Present . . . . .	3
DES 220	Interior Methods and Materials. . . . .	3
DES 222*	Graphic Communication II . . . . .	3
DES 230*	Interior Design Business and Professional Practices . . . . .	3
DES 255*	Space Planning II . . . . .	3
DES 256*	Human/Environmental Design . . . . .	3
DES 280	Interior Design Portfolio Development . . . . .	1
<b>Subtotal . . . . .</b>		<b>40</b>

### Required Support Courses

CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
CAD 158*	Interior Design/Drafting I . . . . .	3
<b>Subtotal . . . . .</b>		<b>7</b>

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

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

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

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

## Interior Design — Associate of Arts Degree for Transfer

### Arizona General Education Curriculum Requirements (AGEC-A) -

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

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

English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	†
ART 110, ART 130 and DES 213 fulfill this requirement.	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
See General Education section, page 50	
Social and Behavioral Sciences . . . . .	†
PSY 101, ECN 200 and SOC 101 fulfill this requirement	
Other Requirements. . . . .	†
Special Requirements	
I, C, and G requirements should be fulfilled by courses in the above categories.	

**Subtotal . . . . . 17‡**

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

DES 100	Introduction to Interior Design . . . . .	3
DES 111	Fundamentals of Design. . . . .	3
DES 122	Graphic Communication I . . . . .	3
DES 155	Space Planning I . . . . .	3
DES 160	Fabrics for Interiors. . . . .	3
DES 212	History of Interior Architecture and Furniture From the Egyptian Period to 1900 . . . . .	3
DES 213	History of Interior Architecture and Furniture From 1900 to the Present . . . . .	3
DES 222*	Graphic Communication II . . . . .	3
DES 255	Space Planning II . . . . .	3
<b>Subtotal . . . . .</b>		<b>27</b>

### Required Support Courses

ART 110*	Drawing I. . . . .	3
ART 130	Art and Culture: Prehistoric through Gothic . . . . .	3
CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
ECN 200*	Basic Economic Principles . . . . .	3
PSY 101	Introduction to Psychology . . . . .	4
SOC 101	Introduction to Sociology . . . . .	3
<b>Subtotal . . . . .</b>		<b>20</b>

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

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

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

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

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

Program Identification Code:

**AOADESIGN**

*The Associate of Arts Degree for Transfer is designed to articulate with Northern Arizona University's Interior Design program in the School of Performing Arts. The completion of the Associate of Arts Degree for Transfer in Interior Design provides applicable credits towards Northern Arizona University's Bachelor of Science Degree in Interior Design. Also the Associate of Arts Degree from Pima Community College, by containing the AGECE-A, fulfills the lower-division liberal studies requirements for Northern Arizona University.*

# International Business Studies

- International Business Studies — Associate of Applied Science Degree for Direct Employment

This degree program covers the following areas: language training, cross-cultural training for the business and/or social environment, training for living in a foreign country, culture shock training, training to develop skills in handling everyday transactions of international trade and training for hosting foreign business personnel. In addition the degree encompasses business course offerings and general education requirements.

Courses in these programs are structured to accommodate content for any country or geographic region. The acculturation portion of the program should be taken by family members of employees anticipating a foreign assignment. For transcript purposes, each IBS course will show the actual foreign country or region studied.

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

Program Identification Code:  
**AASINTLBUSIN**

*This degree is fully transferable to the University of Phoenix to pursue a Bachelor of Science in Business Management (BSB/Mgt.) with an emphasis in International Business.*

*This program area is designed to meet the needs of business and industry by focusing education and training in:*  
*(1) preparing the student for employment in both the domestic and international business settings and (2) upgrading the skills of students currently employed in a company dealing with multicultural and diversity issues.*

*Business courses and general education requirements are an integral part of this program. Additionally, this degree covers foreign language training, cross-cultural studies, international business, and awareness of global issues impacting the business world.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	†
Foreign language and ECN 202 fulfill this requirement.	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CSA 101 fulfills this requirement.	
<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>		
BUS 210	International Business . . . . .	3
ECN 202	Macroeconomic Principles . . . . .	3
FOR/LANG	Foreign Language Electives . . . . .	8-10
Complete one of the following sequences:		
FRE 101, 102*		
GER 101, 102*		
ITA 101, 102*		
JPN 101, 102*		
RUS 101, 102*		
IBS 121, 122 (or SPA 121, SPA 122)*		
IBS 120	Cultural Environment of International Business . . . . .	3
IBS 135	The International Career . . . . .	1
IBS 140	Basic Techniques of International Trade . . . . .	3
IBS 162	Controversial Global Issues . . . . .	1
IBS 170	Doing Business with Mexico . . . . .	1
MGT 280*	Business Organization and Management . . . . .	3
MKT 111	Principles of Marketing . . . . .	3
<b>Subtotal . . . . .</b>		<b>29-31</b>

**Required Support Courses**

ACC 101	Financial Accounting . . . . .	3
ACC 102*	Managerial Accounting . . . . .	3
BUS 151*	Mathematics of Business . . . . .	3
BUS 220	Legal Environment of Business . . . . .	3
CSA 101	Computer Fundamentals . . . . .	3
MGT 110	Human Relations in Business and Industry . . . . .	3
Elective	Any course numbered 100 or higher . . . . .	1-3
<b>Subtotal . . . . .</b>		<b>19-21</b>

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

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

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

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

## Interpreter Training Program

- Interpreter Training Program — Associate of Applied Arts Degree for Direct Employment

### Acceptance Into the Program:

In addition to meeting general requirements for admission to Pima Community College, the applicant must:

- Successfully complete or show an equivalency for:
  - SLG 202 - American Sign Language IV
  - REA 075 - Spelling
- Demonstrate a 12th grade reading level
- Complete an Interpreter Training Program application packet
- Receive approval by the Interpreter Training Program selection committee

## Interpreter Training Program — Associate of Applied Arts Degree for Direct Employment

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

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

Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	6
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 49	
<b>Subtotal . . . . .</b>	<b>19-21</b>

*continued next page*

Program Identification Code:  
**AAAINTPTRAIN**

*This curriculum provides theoretical academic and technical training to those students desiring to pursue a degree in interpreting for the Deaf. The program includes classroom lecture, laboratory skills, and field experience in the community.*



# Interpreter Training Program — Associate of Applied Arts Degree for Direct Employment

(continued)

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
ITP 105*	Fingerspelling and Numbers . . . . .	2
ITP 200*	Introduction to the Deaf Community . . . . .	4
ITP 203*	Linguistics of American Sign Language . . . . .	3
ITP 205*	Advanced Fingerspelling and Numbers . . . . .	2
ITP 210*	Introduction to Interpreting . . . . .	4
ITP 215*	Classifiers, Mimetic Description and ASL Literature . . . . .	4
ITP 220*	Interpreting I . . . . .	4
ITP 250*	Interpreting II . . . . .	4
ITP 268*	Etymology . . . . .	3
ITP 270*	Beginning Sign to Voice . . . . .	4
ITP 280*	Advanced Sign to Voice . . . . .	4
ITP 285*	Educational Interpreting/Transliterating . . . . .	4
ITP 290*	Interpreter Training Field Experience . . . . .	2
<b>Subtotal</b>		<b>44</b>
<b>Required Support Courses</b>		
ANT 215	The Nature of Language . . . . .	3
STU 130	Stress Management for Wellness . . . . .	3
SPE 102	Introduction to Speech Communication . . . . .	3
<b>Subtotal</b>		<b>9</b>
<b>Total credits as displayed</b>		<b>72-74§</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.		

## Journalism

A student planning on obtaining a journalism degree should follow the Associate of Arts Degree for Transfer. The program is designed to prepare students to transfer to a four-year college or university program in journalism. Those interested in reporting should have a well-rounded background with emphasis on interviewing, writing, and storytelling skills. Typing and familiarity with word processing are also necessary. Photojournalism is an option for students who have basic darkroom skills and who are interested in black-and-white and color photography. Those interested in publication production should have a background in art, design, graphics, and computers.

Verification of transfer courses should be established with the transfer university or college or a Pima Community College counselor or faculty advisor. For additional information on Associate of Arts Degree for Transfer and Associate of Science Degree transferability to regional universities, please refer to the chart in the front of this section.

Program Identification Code:

**AOALIBRALART**

## Languages

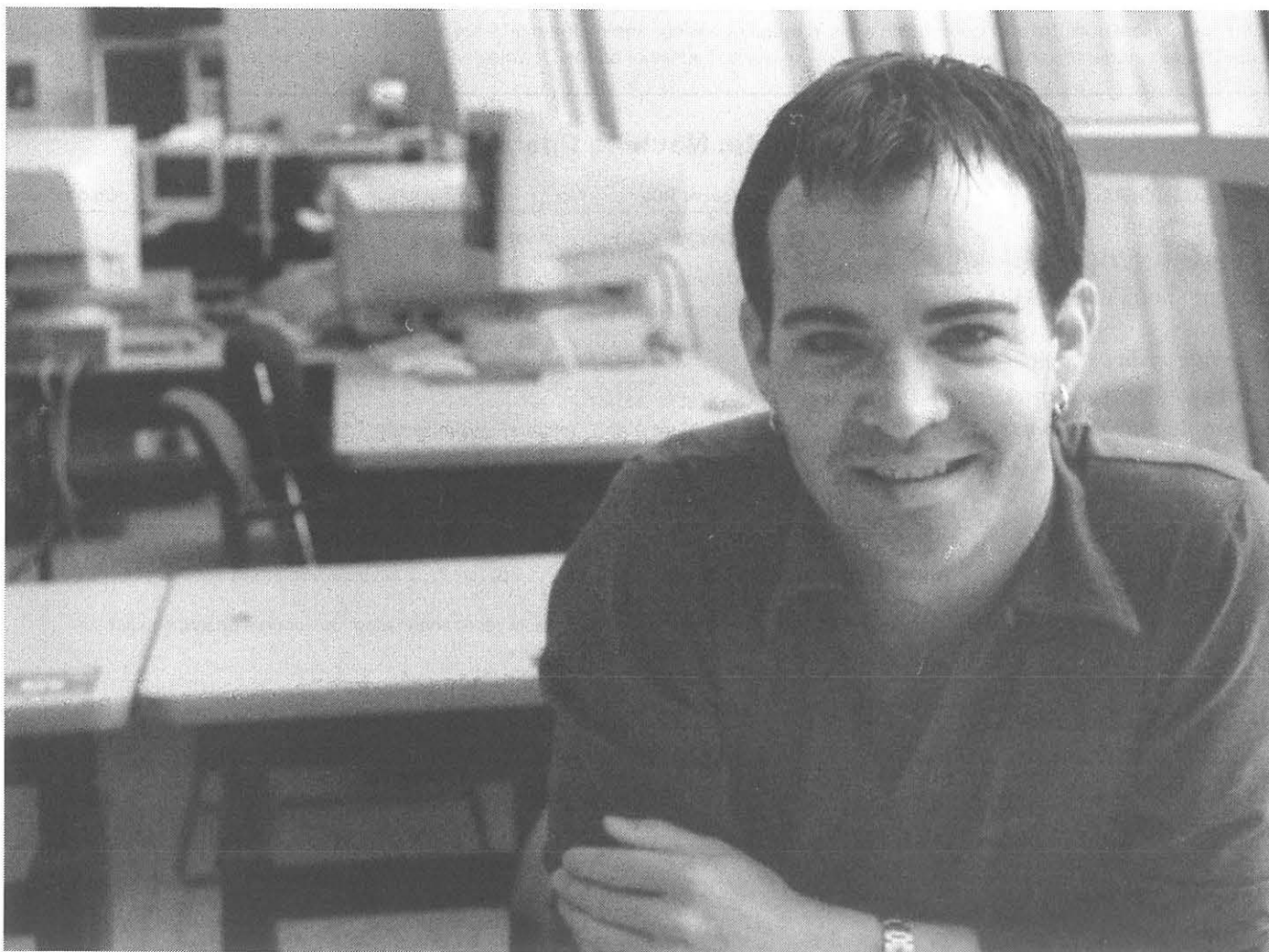
Pima Community College offers the following languages:

- Apache
- Arabic
- Chinese
- French
- German
- Greek
- Hebrew
- Italian
- Japanese
- Latin
- Portuguese
- Russian
- Sign Language
- Spanish
- Tohono O'odham
- Yaqui

Arizona State University, Northern Arizona University, and the University of Arizona offer degree programs in many of these languages. A student planning on obtaining a degree with an option in one of these languages should follow the **Associate of Arts Degree for Transfer in Liberal Arts**. See an advisor or counselor and complete a program of study form using the Transfer Guide.

The universities offer additional language degrees as well. A student planning on obtaining a degree with an option in one of the languages not offered by Pima Community College should complete the AGECE Certificate or a Liberal Arts degree before transferring to a university. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Use Program ID Code  
for Liberal Arts:  
**AOALIBRALARTS**



# Machine Tool Technology

## Machine Tool Technology — Certificates for Direct Employment:

- Machine Operator
- Manual Machinist
- Mechanical Inspector
- Computer Numerical Control (CNC) Machinist
- Computer Numerical Control (CNC) Programmer
- Electrical Discharge Machine (EDM) Operator
- Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Programmer
- Machine Tool Technology — Associate of Applied Science Degree for Direct Employment
- Manufacturing Technology — Associate of Science Degree for Transfer

This program area is designed to provide the skills, knowledge, and practice needed for employment as a machinist. Depending upon their qualifications, students may find positions in the local job market as machine operators, manual machinists, CNC machinists, CNC programmers, mechanical inspectors or machinist apprentices.

Nine programs are available: Machine Operator; Manual Machinist; Mechanical Inspector; Computer Numerical Control (CNC) Machinist; CNC Programmer; Electrical Discharge Machine (EDM) Operator; EDM CNC programmer certificates; an Associate of Science Degree for Transfer; and the Associate of Applied Science Degree in Machine Tool Technology with seven options to choose from: Machine Operator, Manual Machinist, Mechanical Inspector, CNC Machinist, CNC Programmer, Electrical Discharge Machine (EDM) Operator and EDM CNC programmer.

Machine tool training includes a broad range of techniques used in metals manufacturing in addition to support courses in manufacturing processes, metallurgy, math, computer aided drafting, and computer aided machining. Such a background can provide a base from which students may pursue a baccalaureate degree in manufacturing engineering technology or mechanical engineering. Students interested in obtaining the higher degree should contact the college or university of their choice to determine transfer requirements.

Good mechanical aptitude and good basic skills in reading, writing, and mathematics are important for success in this program. It is suggested that all students confer with a machine tool advisor or counselor on the Downtown Campus before registering.

## Machine Tool Technology — Certificate: Machine Operator Concentration

Major Code: **MAC**

Program Code:

**CRTMACHNTOOL**

Concentration Code: **MACO**

*The certificate in this concentration is designed to prepare students for entry level employment as machine operators. It can be applied toward the Associate of Applied Science Degree in Machine Tool Technology.*

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MAC 110	Manual Machine Shop . . . . .	4
MAC 130*	Jig and Fixture Design . . . . .	4
<b>Subtotal</b> . . . . .		<b>8</b>
<b>Required Support Courses</b>		
CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal</b> . . . . .		<b>10</b>
<b>Total credits as displayed</b> . . . . .		<b>18</b>

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

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

## Machine Tool Technology — Certificate: Manual Machinist Concentration

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	3
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	†
GTM 105 fulfills this requirement.	
<b>Subtotal</b> . . . . .	<b>3</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

MAC 110	Manual Machine Shop . . . . .	4
MAC 125*	Mechanical Inspection . . . . .	4
MAC 130*	Jig and Fixture Design . . . . .	4
MAC 275	Applied Metallurgy . . . . .	4
<b>Subtotal</b> . . . . .		<b>16</b>

### Required Support Courses

CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
CAD 152*	Mechanical Design and Drafting I . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal</b> . . . . .		<b>14</b>

**Total credits as displayed** . . . . . **33**

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

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

Major Code: **MAC**

Program Code:

**CRTMACHNTOOL**

Concentration Code: **MACM**

Please note: These codes

became effective Fall 2002.

Students enrolled in the program before Fall 2002 may still use the previous codes.

*The certificate in this concentration is designed to prepare students for entry level employment as conventional machinists, and machinist apprentices. It is also the foundation for continuing into the CNC Machinist concentration, and the Associate of Applied Science Degree in Machine Tool Technology.*

## Machine Tool Technology — Certificate: Mechanical Inspector Concentration

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

MAC 125*	Mechanical Inspection . . . . .	4
MAC 275	Applied Metallurgy . . . . .	4
<b>Subtotal</b> . . . . .		<b>8</b>

### Required Support Courses

CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
CAD 152*	Mechanical Design and Drafting I . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal</b> . . . . .		<b>14</b>

**Total credits as displayed** . . . . . **22**

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

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

Major Code: **MAC**

Program Code:

**CRTMACHNTOOL**

Concentration Code: **MACI**

*The certificate in this concentration is designed to prepare students for entry level employment as a mechanical inspector. It can be applied toward the Associate of Applied Science Degree in Machine Tool Technology.*



## Machine Tool Technology — Certificate: Computer Numerical Control (CNC) Machinist Concentration

Major Code: **MAC**

Program Code:

**CRTMACHNTOOL**

Concentration Code: **MACC**

Please note: These codes became effective Fall 2002.

Students enrolled in the program before Fall 2002 may still use the previous codes.

*The certificate in this concentration is designed to prepare students for entry level employment as CNC machinists and CNC machine operators. It can be applied toward the Associate of Applied Science Degree in Machine Tool Technology.*

**Entrance requirement:** Two years minimum manual machinist or CNC operator experience required, or MAC 110.

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MAC 125	Mechanical Inspection . . . . .	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I . . . . .	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II . . . . .	4
MAC 160*	Computer Numerical Control (CNC) Lathe Programming . . . . .	4
<b>Subtotal</b>		<b>16</b>
<b>Required Support Courses</b>		
CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal</b>		<b>10</b>
<b>Total credits as displayed</b>		<b>26</b>

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

## Machine Tool Technology — Certificate: Computer Numerical Control (CNC) Programmer Concentration

Major Code: **MAC**

Program Code:

**CRTMACHNTOOL**

Concentration Code: **MACP**

*The certificate in this concentration is designed to prepare students for entry level employment as CNC programmers and operators. It can be applied toward the Associate of Applied Science Degree in Machine Tool Technology.*

**Entry requirement:** Two years minimum manual machinist or CNC operator experience required, or MAC 110.

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement . . . . .	See General Education section, page 49	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 150*	Computer Numerical Control (CNC) Mill Programming I . . . . .	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II . . . . .	4
MAC 160*	Computer Numerical Control (CNC): Lathe Programming . . . . .	4
MAC 257 *	Computer Aided Machining (CAM ) I . . . . .	4
MAC 258*	Computer Aided Machining (CAM ) II . . . . .	4
MAC 259*	Computer Aided Machining (CAM ) III: Solid Modeling. . . . .	4
<b>Subtotal</b>		<b>24</b>

**Required Support Courses**

CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal</b>		<b>6</b>

**Total credits as displayed . . . . . 33**

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

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

## Machine Tool Technology — Certificate: Electrical Discharge Machine (EDM) Operator Concentration

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

MAC 110	Manual Machine Shop . . . . .	4
MAC 140 *	Introduction to Electrical Discharge Machining . . . . .	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I . . . . .	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II . . . . .	4
MAC 245*	Wire Electrical Discharge Machining and Programming . . . . .	4
<b>Subtotal</b>		<b>20</b>

**Required Support Courses**

GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal</b>		<b>3</b>

**Total credits as displayed . . . . . 23**

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

Major Code: **MAC**

Program Code:

**CRTMACHNTOOL**

Concentration Code: **MACE**

*The certificate in this concentration is designed to prepare students for entry level employment as EDM machine operators.*

*This certificate can be applied toward the Associate of Applied Science Degree in Machine Tool Technology.*

## Machine Tool Technology — Certificate: Electrical Discharge Machine (EDM) Computer Numerical Control (CNC) Programmer Concentration

Major Code: **MAC**

PROGRAM CODE:

**CRTMACHNT00L**

Program Code: **MACD**

*The certificate in this concentration is designed to prepare students for entry level employment as EDM CNC programmers and operators. This certificate can be applied toward the Associate of Applied Science Degree in Machine Tool Technology.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	3
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	†
GTM 105 fulfills this requirement.	
<b>Subtotal . . . . .</b>	<b>3</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

MAC 110	Manual Machine Shop . . . . .	4
MAC 140*	Introduction to Electrical Discharge Machining . . . . .	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I . . . . .	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II . . . . .	4
MAC 245*	Wire Electrical Discharge Machining and Programming . . . . .	4
MAC 257 *	Computer Aided Machining (CAM) I . . . . .	4
MAC 262*	Wire Electrical Discharge Machining (EDM) with Computer Aided Machining (CAM) . . . . .	4
<b>Subtotal . . . . .</b>		<b>28</b>

### Required Support Courses

CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal . . . . .</b>		<b>6</b>

**Total credits as displayed . . . . . 37**

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

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



## Machine Tool Technology — Associate of Applied Science Degree for Direct Employment

### General Education Requirements

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	†
GTM 105 and MAC 275 fulfill this requirement.	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CAD 101 fulfills this requirement.	
<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 110	Manual Machine Shop . . . . .	4
MAC 275	Applied Metallurgy . . . . .	4
<b>Subtotal . . . . .</b>		<b>8</b>

### Required Support Courses

CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
GTM 105*	Applied Technical Mathematics . . . . .	3
<b>Subtotal . . . . .</b>		<b>10</b>

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

Choose one of the following concentrations (options): . . . . .  
 Department chair or faculty advisor approval is recommended in the selection of the program option.

#### Machine Operator

Concentration Code: **MACO**

MAC 130*	Jig and Fixture Design . . . . .	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>

#### Manual Machinist

Concentration Code: **MACM**

CAD 152*	Mechanical Design and Drafting I . . . . .	4
MAC 125*	Mechanical Inspection . . . . .	4
MAC 130*	Jig and Fixture Design . . . . .	4
ELEC	Technical Electives . . . . .	18
Complete 18 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD		
<b>Subtotal . . . . .</b>		<b>30</b>

*continued next page*

Major Code: **MAC**  
 Program Code:  
**AASMACHNTOOL**  
 Concentration Code:  
**see options**

*This program is designed to prepare students for entry level employment in machine tool occupations such as machine operator, manual machinist, mechanical inspector, CNC machinist, CNC programmer; or as a foundation for higher degrees in mechanical or manufacturing engineering.*



## Machine Tool Technology — Associate of Applied Science Degree for Direct Employment

(continued)



### Mechanical Inspector

Concentration Code: **MACI**

CAD 152*	Mechanical Design and Drafting I	4
MAC 125*	Mechanical Inspection	4
ELEC Technical Electives		22
Complete 22 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD		
<b>Subtotal</b>		<b>30</b>

### Computer Numerical Control (CNC) Machinist

Concentration Code: **MACC**

MAC 125*	Mechanical Inspection	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II	4
MAC 160*	Computer Numerical Control (CNC): Lathe Programming	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	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II	4
MAC 160*	Computer Numerical Control (CNC): Lathe Programming	4
MAC 257*	Computer Aided Machining (CAM) I	4
MAC 258*	Computer Aided Machining (CAM) II	4
MAC 259*	Computer Aided Machining (CAM) III: Solid Modeling	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	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II	4
MAC 245*	Wire Electrical Discharge Machining and Programming	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) Programmer**Concentration Code: **MACD**

MAC 140*	Introduction to Electrical Discharge Machining	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 155*	Computer Numerical Control (CNC) Mill Programming II	4
MAC 245*	Wire Electrical Discharge Machining and Programming	4
MAC 257 *	Computer Aided Machining (CAM) I	4
MAC 262*	Wire Electrical Discharge Machining (EDM) with Computer Aided Machining (CAM)	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>60\$</b>

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

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

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

**Manufacturing Technology — Associate of Science Degree for Transfer****Arizona General Education Curriculum Requirements (AGEC-S) -****A grade of C or better is required for graduation.**

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

English Composition ..... †  
WRT 101\*, 102\* fulfill this requirementHumanities and Fine Arts ..... 6  
See General Education section, page 50Biological and Physical Sciences ..... †  
PHY 210/210LB/IN\* and 216/216LB/IN\* fulfill this requirement.Mathematics ..... †  
MAT 220 fulfills this requirement.Social and Behavioral Sciences ..... 3  
ECN 200 fulfills 3 credits of this requirement  
See General Education section, page 50Other Requirement Options ..... †  
MAT 231 fulfills this requirementAGEC Special Requirements  
The I, C, and G requirement should be fulfilled by courses in the above categories.  
See General Education section, page 50**Subtotal** ..... **9¥***continued next page***Program Identification****Code: AOSMANUFTECH**

*This degree display is designed  
for students planning to transfer  
to a university to major in  
an engineering field with an  
emphasis in manufacturing.  
See an advisor or counselor and  
ask for the Associate of Science  
program guide and checklist*

**Manufacturing Technology — Associate of Science Degree for Transfer** *(continued)*

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MAC 110	Manual Machine Shop . . . . .	4
MAC 125*	Mechanical Inspection . . . . .	4
MAC 150*	Computer Numerical Control (CNC) Mill Programming I . . . . .	4
Machine Tool Elective . . . . .		4
Complete 4 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: MAC 155, 160, or 257		
<b>Subtotal . . . . .</b>		<b>16</b>
<b>Required Support Courses- A grade of C or better is required for graduation.</b>		
CAD 172*	Geometric Dimensioning and Tolerancing . . . . .	3
ECN 200*	Basic Economic Principles . . . . .	3
MAT 220*	Calculus I . . . . .	5
MAT 231*	Calculus II . . . . .	4
MAT 241*	Calculus III . . . . .	4
MAT 262*	Differential Equations . . . . .	3
PHY 210/210LB/IN*	Introductory Mechanics . . . . .	5
PHY 216/216LB/IN*	Introductory Electricity and Magnetism . . . . .	5
WRT 101*	Writing I . . . . .	3
WRT 102*	Writing II . . . . .	3
<b>Subtotal . . . . .</b>		<b>38</b>
<b>Total credits as displayed . . . . .</b>		<b>63§</b>

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

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

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

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

**Mathematics**

- Associate of Arts Degree for Transfer in Liberal Arts

A student planning on obtaining 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 advisor to plan courses. The student who plans on transferring to an upper division school to complete a degree should also contact an advisor or counselor from the chosen school for verification of transfer courses.

Program Identification Code:

**AOALIBRALART**

## Microbiology

See Biology

Program Identification Code:  
**AOSSCIENCE**

## Molecular/Cellular Biology

See Biology

Program Identification Code:  
**AOSSCIENCE**

## Music

- Music — Associate of Arts Degree for Transfer

Please **see the Online Catalog** ([www.pima.edu](http://www.pima.edu)) for the Music Option of the Associate of Fine Arts degree.





# Nursing

- Associate Degree Nursing — Associate of Applied Science Degree for Direct Employment

## Overview

Pima Community College offers a variety of educational alternatives for students who seek to enter the nursing field. These alternatives are included in a program that prepares graduates to function in the role of Registered Nurse, Licensed Practical Nurse, Patient Care Technician, or Nursing Assistant level.

Upon successful completion of a specified portion or all of the program, the graduate is eligible to take the required registry and licensure examination.

The Associate Degree Nursing Program can be completed only at the West Campus. An Associate of Applied Science Degree for Direct Employment can be granted to the student who successfully completes two years (four semesters) of the Associate Degree Nursing Program.

The Practical Nursing Program can be completed at the West Campus or the Center for Training and Development. The Practical Nurse Program at the Center for Training and Development does not provide college credit.

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

*The Associate Degree Nursing (ADN) Program prepares the student to enter nursing practice as a registered nurse.*

This program is approved by the Arizona State Board of Nursing and accredited by the National League of Nursing Accrediting Commission (NLNAC), 61 Broadway, New York, NY 10006, Tel: 212-363-5555 x153. Students satisfactorily completing this curriculum will graduate with an Associate of Applied Science degree in nursing. Graduates of this program will be eligible to take the National Council Licensure Examination (NCLEX-RN) to qualify for licensure as a registered nurse.

Admission or graduation from the program does not guarantee obtaining a license or certificate to practice nursing. Licensure and certification requirements and the subsequent procedures are the exclusive right and responsibility of the Arizona State Board of Nursing. Students must satisfy the requirements of the Nurse Practice Act Statutes, Rules and Regulations (August 1998) independently of any college or school requirements for graduation.

If convicted of a felony, an applicant for licensure/certification must submit proof that they have completed any sentence including imprisonment, probation, parole, community supervision or any form of court supervision. The Arizona Nurse Practice Act (Sections 32-1601; 32-1632; 32-1637). Examples of situations which may prohibit licensure and certification include, but are not limited to, felony/misdemeanor convictions, substance abuse, conviction of an offense involving immoral behavior, or being guilty of acts which deceive, defraud or harm the public in any way. Fingerprinting will be part of the application process for nursing assistant, LPN and RN applicants.

Program graduates may transfer to other colleges and universities for continued education at the baccalaureate level. Articulation agreements are currently in place with the University of Arizona and the University of Phoenix.

A certificate for direct employment as a practical nurse can be granted to the student who successfully completes the first year of the Associate Degree Nursing Program and the NRS 180 course. The student will be eligible to take the National Council Licensure Examination (NCLEX-PN) for licensure as a Practical Nurse (LPN).

A Nursing Assistant certificate can be granted to the student who successfully completes the first semester of the Associate Degree Nursing Program.

Students opting to leave the nursing program at the end of the first semester, or at the end of the first year, may reenter the second or third semester without need for further course work if they reenter within one (1) year as based on space availability.

The Practical Nurse graduate from the Center for Training and Development, and the Licensed Practical Nurse from the Tucson community are eligible to apply for entry into the second year of the Associate Degree Nursing (ADN) Program by completing the prerequisite requirements. If accepted, the student must successfully complete a three credit transition course (NRS 188/188LB) and meet all acceptance requirements for admission into the third semester of the Associate Degree Nursing (ADN) Program.

Students currently enrolled in an accredited ADN Nursing Program out of state may apply to transfer into the second or third semester of the nursing program. Interested students should contact the Health Related Professions admissions office at the West Campus. Admission is dependent on evaluation of general education and nursing education course work as well as seat availability.

Admission to the ADN program requires a separate application procedure.

Interested applicants should contact the nursing department for specific information.

Students are encouraged to meet with an advisor or counselor.

Students seeking admission to the Associate Degree Nursing program must have either completed or be currently enrolled during the fall semester in the following basic requirements before receiving an application:

#### Program Prerequisites:

- High school diploma or GED
- Admission to Pima Community College
- COMPASS reading assessment test score of 90 , or completion of REA 112
- Math assessment test at the level of MAT 151 or higher, or completion of MAT 122
- Completion of CHM 130/130LB/130IN with a grade of C or better within the last 8 years
- Please note: a combined average grade of "B" or better is required for the following courses
- BIO 201IN with grade of C or better within the last 8 years
- BIO 202IN with grade of C or better within the last 8 years

In addition, it is essential that nursing students 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 behavioral under stressful conditions. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

#### General Program Requirements

- Total required credits: 72-74 credit hours
- ADN course work: 36 credit hours
- General Education courses: 36-38 credit hours

#### Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program department chairperson.
- Prerequisite, support, and general education courses taken at other accredited colleges or universities will be evaluated for transfer by the college transcript evaluation department.

#### Minimal Grade Achievements

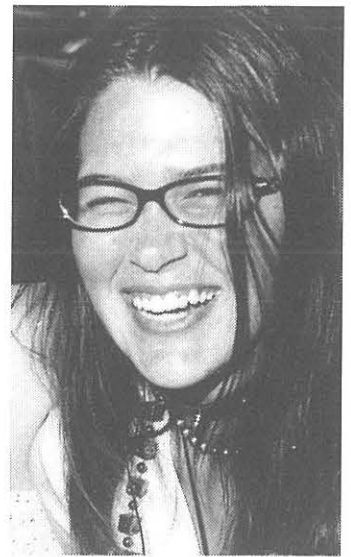
- Students must receive a C grade or better in all courses to progress to the next semester or to graduate.

The Associate Degree Nursing (ADN) Program prepares the student to enter nursing practice as a registered nurse.

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101 and WRT 102* fulfill this requirement.	
Analysis and Critical Thinking Requirement . . . . .	†
Program prerequisites fulfill this requirement.	
Humanities and Social Science Requirement . . . . .	3
PSY 101 fulfills part of this requirement.	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
Core or support courses fulfill this requirement.	
<b>Subtotal . . . . .</b>	<b>3</b>

*continued next page*



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

(continued)

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
NRS 104/104LC/104LS*	Nursing Process I . . . . .	8
NRS 105/105LC/105LS*	Nursing Process II . . . . .	9
NRS 201/201LC*	Nursing Process III . . . . .	9
NRS 202/202LC*	Nursing Process IV . . . . .	9
NRS 203*	Trends and Issues in Nursing . . . . .	1
<b>Subtotal</b>		<b>36</b>
<b>Required Support Courses - A grade of C or better is required for graduation.</b>		
BIO 201IN*	Human Anatomy and Physiology I . . . . .	4
BIO 202IN*	Human Anatomy and Physiology II . . . . .	4
BIO 205IN*	Microbiology . . . . .	4
ECE 107* or ECE 117*	Human Development and Relations Child Growth and Development . . . . .	3
FSN 127 or FSN 154	Human Nutrition and Biology Nutrition . . . . .	3-4
HCA 102	Drug Calculations . . . . .	1
HCA 155	Pharmacology . . . . .	3
PSY 101*	Introduction to Psychology . . . . .	4
WRT 101*	Writing I . . . . .	3
WRT 102*	Writing II . . . . .	3
<b>Subtotal</b>		<b>32-33</b>
<b>Total credits as displayed</b>		<b>71-72§</b>

† Support or core course(s) fulfill this requirement.

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

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



## Office and Administrative Professions (Formerly Administrative and Office Support Careers)

- Office Assistant — Certificate for Direct Employment
- Office Specialist — Certificate for Direct Employment
- Office and Administrative Professionals — Associate of Applied Science Degree for Direct Employment
- Records and Information Management — Associate of Applied Science Degree for Direct Employment
- Computer Applications Office Assistant — Certificate for Direct Employment
- Computer Applications Office Specialist Certificate for Direct Employment

Office and Administrative Professions offers a variety of courses and programs. The certificate offerings include office assistant, computer applications office assistant, office specialist, and computer applications office specialist. The Office and Administrative Professionals Associate of Applied Science degree offers students the opportunity to pursue options for preparation as an administrative assistant, a computer applications office assistant, legal secretary, medical front office specialist, or a medical transcriptionist. There is also an Associate of Applied Science degree in records and information management with options in either business or health information management.

The Office and Administrative Professions curriculum offers education in communications, analysis and critical thinking, humanities and social science, computer applications and professional development.

### Office Assistant — 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>		
OAP 111	Computer Keyboarding and Document Production . . . . .	3
OAP 123*	Professional Development for Administrative Support. . . . .	3
OAP 151*	Business English . . . . .	3
OAP 171*	Office Procedures. . . . .	4
CSA 182A	Microsoft Windows: Current Version Module A . . . . .	1
<b>Subtotal</b> . . . . .		<b>14</b>
<b>Required Support Courses</b>		
CSA 120	Word Processing: Word . . . . .	3
CSA 152A	Internet Browser: Microsoft Explorer Module A . . . . .	1
RIM 132	Records Management: Filing Systems. . . . .	3
<b>Subtotal</b> . . . . .		<b>7</b>
<b>Total credits as displayed</b> . . . . .		<b>21</b>

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

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

Program Identification Code:  
**CRTADMINAIDE**

*An office assistant performs a variety of tasks to facilitate office operations. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus.*



## Office Specialist — Certificate for Direct Employment

Program Identification Code:  
**CRTADMINSPEC**

*An office specialist manages, coordinates, and organizes an office to provide administrative support to an organization. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus.*

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

Communication Requirement . . . . .	†
OAP 151* fulfills this requirement . . . . .	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49 . . . . .	
<b>Subtotal . . . . .</b>	<b>3</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

OAP 111	Computer Keyboarding and Document Production . . . . .	3
OAP 114*	Computer Keyboarding: Skillbuilding . . . . .	3
OAP 123*	Professional Development for Administrative Support. . . . .	3
OAP 151*	Business English . . . . .	3
OAP 171*	Office Procedures. . . . .	4
OAP 224*	Machine Transcription . . . . .	3
OAP 251*	Business Communications. . . . .	3
CSA 170	Database: Access . . . . .	3
CSA 182A	Microsoft Windows: Current Version Module A . . . . .	1
<b>Subtotal . . . . .</b>		<b>26</b>

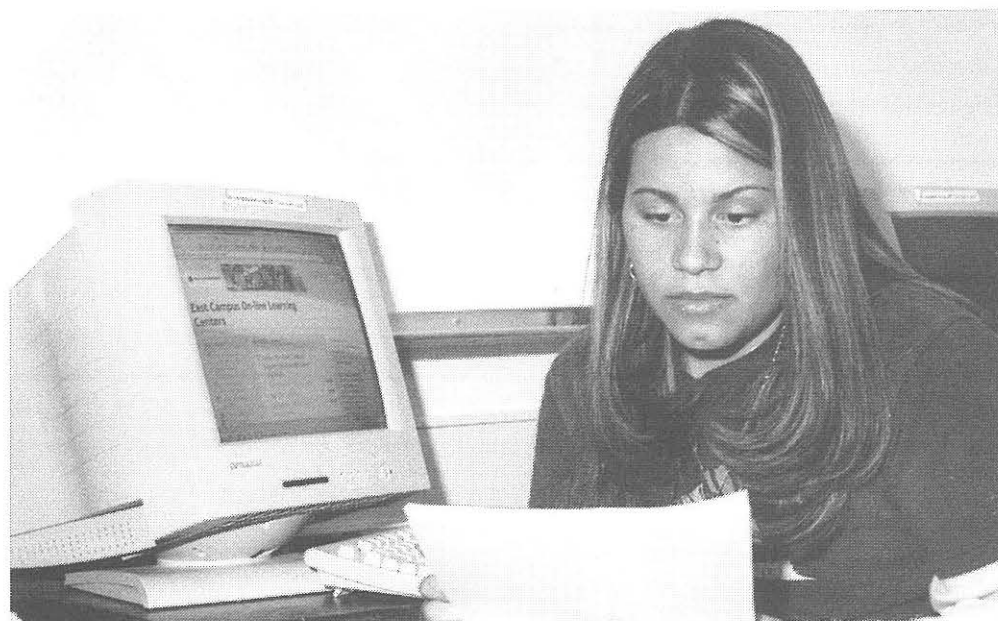
### Required Support Courses

ACC 100	Practical Accounting Procedures. . . . .	3
CSA 110	Spreadsheets: Microsoft Excel. . . . .	3
CSA 120	Word Processing: Word . . . . .	3
CSA 152A	Internet Browser: Microsoft Explorer Module A . . . . .	1
RIM 132	Records Management: Filing Systems. . . . .	3
<b>Subtotal . . . . .</b>		<b>13</b>

**Total credits as displayed . . . . . 42**

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

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



## Office and Administrative Professionals — Associate of Applied Science Degree for Direct Employment

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

Reading Requirement - Please refer to the Reading requirement in the General Education section before enrolling in a general education course.		
Communication Requirement	†	
OAP 151 and OAP 251 fulfill this requirement		
Analysis and Critical Thinking Requirement	6	
See General Education section, page 49		
Humanities and Social Science Requirement	6	
See General Education section, page 49		
Computer and Information Literacy Requirement	†	
OAP 111 and CSA 120 fulfill this requirement.		
<b>Subtotal</b>	<b>12</b>	

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

OAP 111	Computer Keyboarding and Document Production	3
OAP 123*	Professional Development for Administrative Support	3
OAP 151*	Business English	3
OAP 251*	Business Communication	3
CSA 110	Spreadsheets: Microsoft Excel	3
CSA 120	Word Processing: Word	3
CSA 152	Internet Browser: Microsoft Explorer	2
CSA 170	Database: Access	3
CSA 182A	Microsoft Windows: Current Version Module A	1
<b>Subtotal</b>		<b>24</b>

### Required Support Courses

OAP 199*	Co-op Related Class in OAP	1
OAP 199WK*	Co-op Work in OAP	3
<b>Subtotal</b>		<b>4</b>

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

Choose one of the following options: . . . . . 24-29  
 Department faculty advisor or counselor approval is recommended in the selection of the program option.

### Administrative Assistant

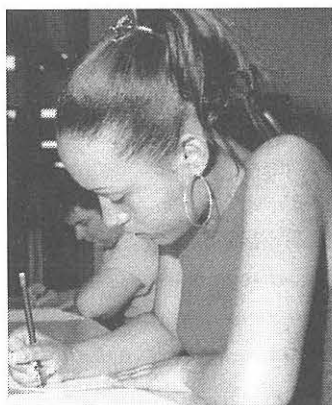
ACC 100	Practical Accounting Procedures	3
OAP 114*	Computer Keyboarding: Skillbuilding	3
OAP 171*	Office Procedures	4
OAP 224*	Machine Transcription	3
CSA 107*	Microcomputer Software/Hardware Topics	3
CSA 130A	PowerPoint: Module A	1
CSA 141*	Integrated Office Suite	4
RIM 132	Records Management: Filing Systems	3
RIM 133	Records Management: Development of a Program	3

*continued next page*

Program Identification Code:  
**AASADMINSUPP**

*This degree prepares students for entering into the office and administrative professionals field. Students will choose to specialize in one of the following options: administrative assistant, computer applications office assistant, legal secretary, or the medical option with a specialty in either medical front office or medical transcription. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus.*

## Office and Administrative Professionals — Associate of Applied Science Degree for Direct Employment *(continued)*



<b>Computer Applications Office Assistant</b>		
OAP 171*	Office Procedures . . . . .	4
BUS 125	Business on the Internet	
or BUS148	Ethics in the Workplace	
or LIB161	Using Search Engines for Research . . . . .	1-3
CSA 101	Computer Fundamentals . . . . .	3
CSA 107*	Microcomputer Software/Hardware Topics . . . . .	3
CSA 130	PowerPoint . . . . .	3
CSA 141*	Integrated Office Suite . . . . .	4
CSA 155	Microsoft FrontPage . . . . .	2
CSA 182B	Microsoft Windows: Current Version: Module B . . . . .	1
CSA 182C	Microsoft Windows: Current Version: Module C . . . . .	1
CSA 207*	Microsoft Publisher . . . . .	3

### Legal Secretary Option

OAP 141	Legal Terms . . . . .	3
OAP 142*	Legal Procedures I . . . . .	3
OAP 143*	Legal Procedures II . . . . .	4
OAP 171*	Office Procedures . . . . .	4
OAP 224*	Machine Transcription . . . . .	3
OAP 242*	Legal Procedures III . . . . .	4
CSA 141*	Integrated Office Suite . . . . .	4

### Medical Option

Take the following three courses and one of the specialty areas below

OAP 162	Medical Terms I . . . . .	3
OAP 262*	Medical Terms II . . . . .	3
BIO 160IN	Introduction to Human Anatomy and Physiology . . . . .	4
(meets General Education Science requirement)		

### Medical Front Office Support Specialty

OAP 114*	Computer Keyboarding: Skillbuilding . . . . .	3
OAP 161*	Medical Office Procedures . . . . .	4
OAP 164*	Medical Transcription I . . . . .	3
RIM 121	Introduction to Health Information Management . . . . .	2
RIM 132	Records Management: Filing Systems . . . . .	3
RIM 221*	Medical/Health Record Coding . . . . .	3

### Medical Transcription Specialty

OAP 114*	Computer Keyboarding: Skillbuilding . . . . .	2-3
OAP 164*	Medical Transcription I . . . . .	3
OAP 264*	Medical Transcription II . . . . .	3
OAP 263*	Medical Terminology for Disease Pathology . . . . .	3
OAP 266*	Medical Transcription III . . . . .	3

**Total credits as displayed . . . . . 64-69§**

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

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

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

## Records and Information Management — Associate of Applied Science Degree for Direct Employment

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

Reading Requirement - Please refer to the Reading requirement in the General Education section before enrolling in a general education course.		
Communication Requirement	.....	6
See General Education section, page 49		
Analysis and Critical Thinking Requirement	.....	6
See General Education section, page 49		
Humanities and Social Science Requirement	.....	6
See General Education section, page 49		
Computer and Information Literacy Requirement	.....	0-3
See General Education section, page 49		
<b>Subtotal</b>	.....	<b>18-21</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

RIM 132	Records Management: Filing Systems	3
RIM 133	Records Management: Development of a Program	3
RIM 231A*	Records Management: Forms Management	1
RIM 231B*	Records Management: Micrographics	1
RIM 231C*	Records Management: Automated Retrieval	1
RIM 232*	Records Management: Supervision	3
<b>Subtotal</b>	.....	<b>12</b>

### Required Support Courses

ACC 101	Financial Accounting	3
OAP 199*	Co-op Related Class in OAP	1
OAP 199WK*	Co-op Work in OAP	2-3
MGT 276*	Human Resources	3
<b>Subtotal</b>	.....	<b>9-10</b>

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

Choose one of the following options:	21-25
Department faculty advisor approval is recommended in the selection of the program option.	

#### Business and Industry Option

BUS 100	Introduction to Business	3
BUS 220	Legal Environment of Business	3
ECN 200*	Basic Economic Principles	3
HIS 141	History of the United States I	3
Technical Electives	.....	9
Complete 9 credit hours from the following list: CIS 100, CSA 120, 141, 170		
<b>Subtotal</b>	.....	<b>21</b>

*continued next page*

Program Identification Code:  
**AASMEDESECTY**

*The Records and Information Management program is designed to train students for direct employment in business and industry or the health information management field. The program is transferable to the University of Phoenix. Students who wish to transfer to another four-year university will have met some of the general education requirements. For students selecting the Health Information Management option, Phoenix College in the Maricopa Community College District has an accredited Health Information Technology program. Some of these courses may meet the requirements of the American Health Information Management Association's correspondence program. See an office and administrative office professions faculty advisor or counselor located on the Downtown Campus.*



## Records and Information Management — Associate of Applied Science Degree for Direct Employment *(continued)*

### Health Information Management Option

OAP 162	Medical Terms I	3
OAP 263*	Medical Terminology for Disease Pathology	3
BIO 201IN*	Human Anatomy and Physiology I	4
BIO 202IN*	Human Anatomy and Physiology II	4
RIM 121	Introduction to Health Information Management	2
RIM 221*	Medical/Health Record Coding	3

#### Technical Electives

Complete 6 credit hours from the following list: CIS 100, CSA 120, 141, 170

**Subtotal** ..... 25

**Total credits as displayed** ..... 60-65§

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

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

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

## Computer Applications Office Assistant — Certificate for Direct Employment

*(Formerly Data Entry Clerk)*

Program Identification Code:  
**CRTCOMPAPPAD**

*This certificate prepares the student to enter the workforce as an entry-level computer applications office assistant. The student will be able to produce documents, spreadsheets, databases, and presentations within the Windows operating environment. Success in this program requires good reading and comprehension skills and the ability to follow instructions. See office and administrative professions faculty advisor or counselor located on the Downtown Campus.*

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.	1
CSA 100	Computer Literacy	1
CSA 110	Spreadsheets: Microsoft Excel	3
CSA 120	Word Processing: Word	3
CSA 130A	PowerPoint : Module A	1
CSA 130B	PowerPoint: Module B	1
CSA 152	Internet Browser: Microsoft Explorer	2
CSA 170	Database: Access	3
CSA 182A	Microsoft Windows: Current Version Module A	1
CSA 182B	Microsoft Windows: Current Version Module B	1
<b>Total credits as displayed</b>		<b>17</b>

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

## Computer Applications Office Specialist — Certificate for Direct Employment

(Formerly Data Entry Operator)

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

Communication Requirement .....	3
See General Education section, page 49	
Analysis and Critical Thinking Requirement .....	3
See General Education section, page 49	
<b>Subtotal .....</b>	<b>6</b>

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

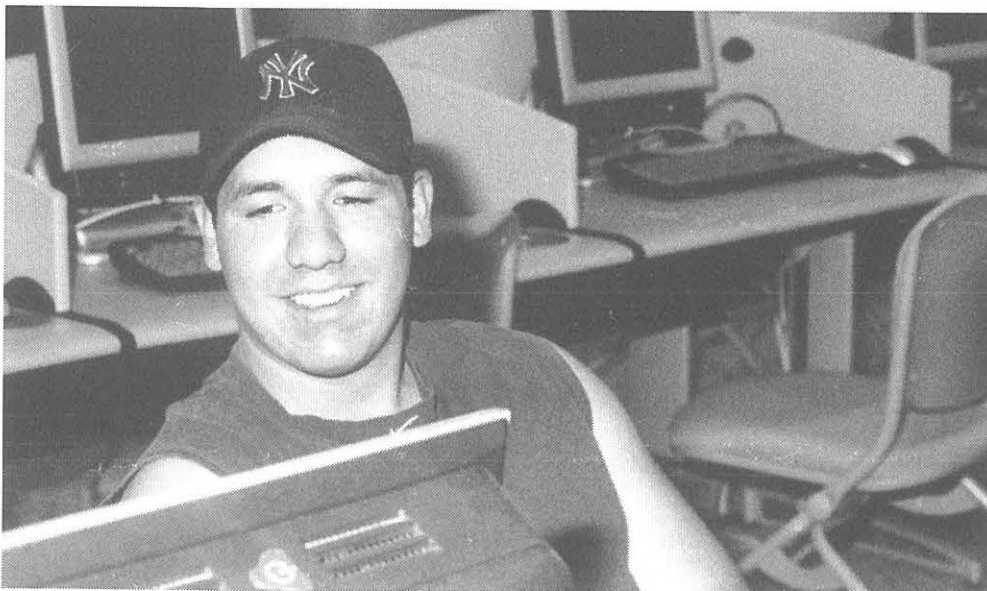
OAP 111	Computer Keyboarding and Document Production .....	3
OAP 171*	Office Procedures .....	4
BUS 125	Business on the Internet	
or BUS148	Ethics in the Workplace	
or LIB161	Research Techniques for the Internet .....	1-3
CSA 100	Computer Literacy .....	1
CSA 107*	Microcomputer Software/Hardware Topics .....	3
CSA 110	Spreadsheets: Microsoft Excel .....	3
CSA 120	Word Processing: Word .....	3
CSA 130	PowerPoint .....	3
CSA 141*	Integrated Office Suite .....	4
CSA 152	Internet Browser: Microsoft Explorer .....	2
CSA 155	Microsoft FrontPage .....	2
CSA 170	Database: Access .....	3
CSA 182A	Microsoft Windows: Current Version Module A .....	1
CSA 182B	Microsoft Windows: Current Version Module B .....	1
CSA 207*	Microsoft Publisher .....	3
<b>Subtotal .....</b>		<b>37-39</b>

**Total credits as displayed .....** 43-45

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

Program Identification Code:  
**CRTCOMPAPPSP**

*This certificate prepares the student for direct employment in the office support field with specialization in computer applications. The student will be able to work independently or assist others in a variety of advanced level computer applications, such as word processing, spreadsheets, database, presentations, desktop publishing, and Web pages within the Windows operating environment. Good reading, comprehension, and critical thinking skills are essential for success in this program. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus.*



## Paralegal (Legal Assistant)

- Paralegal (Legal Assistant) – Associate of Applied Science Degree for Direct Employment
- Paralegal (Legal Assistant) – Advanced Certificate for Direct Employment

This program is approved by the American Bar Association and is designed to prepare students for entry-level paraprofessional positions in the legal field. The American Bar Association states that the terms paralegal and legal assistant are used interchangeably. A paralegal or legal assistant is a person, qualified by education, training or work experience who is employed or retained by a lawyer, law office, corporation, governmental agency or other entity and who performs specifically delegated substantive legal work for which a lawyer is responsible.

Paralegals may not provide legal services directly to the public, except as permitted by law. Paralegals may not give legal advice or otherwise engage in the unauthorized practice of law.

Paralegal work includes developing and modifying procedures used in the legal field; preparing and interpreting legal documents; preparation of a case for trial; investigation of the facts of a case; researching, selecting, assessing, compiling, and using information from the law library and other references; and analyzing and handling procedural problems.

Paralegals may be employed by law firms, businesses, financial institutions, title and escrow companies, or government agencies. Additional positions for which they may qualify include title examiner, trust officer, contract clerk, legal investigator, and law firm administrator. An internship at an approved work site is available during the last semester of course work for students who have not had previous work experience in the legal field.

Students should also have a minimum reading capability at the twelfth-grade level in order to ensure success in the program. In addition, good organizational ability, oral and written communication skills, and ability to relate well to people are important for success in this field.

### Paralegal Program Objectives

To prepare students with employment entry level practical skills and knowledge for the paralegal field, the program offers a series of courses which gives students the ability to:

1. Describe the role and responsibilities of a paralegal within a law office and the court system.
2. Demonstrate knowledge of the law library, research skills and methods, and the ability to write research memoranda and reports using proper citation form for legal sources.
3. Demonstrate knowledge of professional ethics as applied to the practice of law and the paralegal.
4. Demonstrate the paralegal's role during litigation and trial and the ability to prepare motions, pleading, instruments of discovery, note taking, and daily trial recapitulation.
5. Apply legal problem-solving techniques and the principles of abstract, inductive, and deductive reasoning to case law and factual situations.

### Program Options:

A student may choose one of the two programs available. The post-degree certificate carries an admissions requirement of a Baccalaureate or Associate of Arts or Associate of Science Degree from an accredited post-secondary institution. The Associate of Applied Science Degree carries an admissions requirement of a high school diploma or the student must have passed an equivalency examination in order to register for LAS 102, 103, 104, 106, 202, 211, 213, and all LAS specialty electives.

LAS advisors are available only on the Downtown Campus.

## Paralegal (Legal Assistant) — Associate of Applied Science Degree for Direct Employment

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

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

Communication Requirement . . . . . †  
Support courses fulfill this requirement.

Analysis and Critical Thinking Requirement . . . . . †  
Support courses fulfill this requirement.

Humanities and Social Science Requirement . . . . . †  
Support courses fulfill this requirement.

Computer and Information Literacy Requirement . . . . . †  
CSA 101 fulfills this requirement.

**Subtotal . . . . . 0**

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

LAS 101	Introduction to Paralegal Careers . . . . .	3
LAS 102*	Civil Litigation Procedures I . . . . .	3
LAS 103*	Legal Research . . . . .	3
LAS 104*	Paralegal Ethics . . . . .	3
LAS 106*	Civil and Criminal Evidence . . . . .	3
LAS 202*	Civil Litigation Procedures II . . . . .	3
LAS 211*	Legal Writing . . . . .	3
LAS 213*	Computer Assisted Legal Research . . . . .	3

**Subtotal . . . . . 24**

### LAS Specialty Area Electives

Complete 5 courses from the following LAS specialty area electives course list: (Specialty courses are not offered every semester. Consult with an LAS faculty advisor or counselor to determine class offerings.)

LAS 203*	Tort Law Procedures . . . . .	3
LAS 204*	Wills, Trusts, and Estates . . . . .	3
LAS 206*	Criminal Law and Procedures I . . . . .	3
LAS 207*	Criminal Law and Procedures II . . . . .	3
LAS 208*	Domestic Relations and Family Law . . . . .	3
LAS 209*	Bankruptcy Procedures . . . . .	3
LAS 210*	Administrative Law . . . . .	1-4
LAS 212*	Law Office Computerization . . . . .	3
LAS 215*	Corporate Law Procedures . . . . .	3
LAS 217*	Real Estate Legal Procedures . . . . .	3
LAS 290*	Paralegal Internship . . . . .	4

(The internship is designed to give the students work experience at an approved site.

For students in their final semester of course work. Application and acceptance required.)

**Subtotal . . . . . 13-17**

*continued next page*

Program Identification Code:

**AASLEGALASST**

*A paralegal or legal assistant is a person, qualified by education, training or work experience who is employed or retained by a lawyer, law office, corporation, governmental agency or other entity and who performs specifically delegated substantive legal work for which a lawyer is responsible.*

*The Associate of Applied Science Degree carries an admissions requirement of a high school diploma or the student must have passed an equivalency examination in order to register for LAS 102, 103, 104, 106, 202, 211, 213, and all LAS specialty electives.*

*Pima Community College has a partnership agreement with Northern Arizona University's College of Social and Behavioral Sciences. The completion of PCC's AAS degree in Paralegal (Legal Assistant) provides the student with 64 applicable credits towards NAU's Bachelor of Applied Science degree in Public Agency Service. NAU's courses are offered in the Tucson area. Students interested in the Bachelor's degree should see an NAU advisor located in Tucson at Pima Community College Community Campus.*



**Paralegal (Legal Assistant) — Associate of Applied Science Degree for Direct Employment**

(continued)

**Required Support Courses**

ACC 100	Practical Accounting Procedures	3
or ACC 101	Financial Accounting	3
CSA 101	Computer Fundamentals	3
POS 110	American National Government and Politics	3
or POS 220	National and State Constitutions	3
SPE 110	Public Speaking	3
WRT 101*	Writing I	3
or WRT 107*	Writing I for Non-Native Speakers of English	3
WRT 102*	Writing II	3
or WRT 108*	Writing II for Non-Native Speakers of English	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, 105/105LB or 105IN;BIO 100IN or higher (except 198, 297, 298);

CHM 121/121LB or 121IN or higher (except 296, 198, 297);

GEO 101, 102; GLG 101IN, 102IN;

PHY 115/115LB, 121/121LB or 121IN, 122/122LB or 122IN, 210/210LB or 210IN, 216/216LB or 216IN, 221/221LB

## Critical Thinking Category

PHI 120

**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 categorical requirement from the "Other Requirements Options:" (c) Second Language list that has a "G" designation.

## Social and Behavioral Science Category

POS 110 or 220 fulfills 3 credits of this requirement.

**Subtotal** 25**Total credits as displayed** 62-66§**General Education List**

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

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

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

## Paralegal (Legal Assistant) Post-Degree 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>		
LAS 101	Introduction to Paralegal Careers . . . . .	3
LAS 102*	Civil Litigation Procedures I . . . . .	3
LAS 103*	Legal Research . . . . .	3
LAS 104*	Paralegal Ethics . . . . .	3
LAS 106*	Civil and Criminal Evidence . . . . .	3
LAS 202*	Civil Litigation Procedures II . . . . .	3
LAS 211*	Legal Writing . . . . .	3
LAS 213*	Computer Assisted Legal Research . . . . .	3
<b>Subtotal . . . . .</b>		<b>24</b>
LAS Specialty Area Electives		
Complete five courses from the following LAS specialty area electives course list: (Specialty courses are not offered every semester. Consult with an LAS faculty advisor to determine class offerings.)		
LAS 203*	Tort Law Procedures . . . . .	3
LAS 204*	Wills, Trusts, and Estates . . . . .	3
LAS 206*	Criminal Law and Procedures I . . . . .	3
LAS 207*	Criminal Law and Procedures II . . . . .	3
LAS 208*	Domestic Relations and Family Law . . . . .	3
LAS 209*	Bankruptcy Procedures . . . . .	3
LAS 210*	Administrative Law . . . . .	1-4
LAS 212*	Law Office Computerization . . . . .	3
LAS 215*	Corporate Law Procedures . . . . .	3
LAS 217*	Real Estate Procedures . . . . .	3
LAS 290*	Paralegal Internship . . . . .	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>15-16</b>
<b>Required Support Course</b>		
WRT 101*	Writing I	
or WRT 107*	Writing I for Non-Native Speakers of English . . . . .	3
<b>Subtotal . . . . .</b>		<b>3</b>
<b>Total credits as displayed . . . . .</b>		<b>42-43</b>

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

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

Program Identification Code:  
**CRDLEGALASST**

*A paralegal or legal assistant is a person, qualified by education, training or work experience who is employed or retained by a lawyer, law office, corporation, governmental agency or other entity and who performs specifically delegated substantive legal work for which a lawyer is responsible.*

*The post-degree certificate carries an admissions requirement of a Baccalaureate or Associate of Arts or Associate of Science Degree from an accredited post-secondary institution.*

# Pharmacy Technology

- Pharmacy Technology — Certificate for Direct Employment
- Pharmacy Technology — Associate of Applied Science Degree for Direct Employment

Admission to the Pharmacy Technology program requires a separate application procedure. Students are encouraged to meet with an advisor or counselor. Students seeking admission to the Pharmacy Technology program must have completed the following basic requirements before receiving an application:

## Program Prerequisites:

- High School diploma or GED
- Admission to Pima Community College
- Reading assessment test score at the level of the college's reading requirement
- Math assessment test at the level of MAT 122 or higher, or completion of MAT 092 with a grade of C or better

## General Requirements

- Total required credits for the certificate: 39 credit hours
- PHT coursework: 33 credit hours
- Other coursework including General Education: 6 credit hours
- Total required credits for the AAS Degree: 69-71 credit hours
- PHT coursework: 36 credit hours
- Other coursework including General Education: 33-34 credit hours

## Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program department chairperson.

## Minimal Grade Achievement

- Students must receive a grade of C or better in all core courses to progress to the next semester.

## Pharmacy Technology — Certificate for Direct Employment

*This program provides the basic health care skills students can use as pharmacy technicians. Pharmacy technicians can find employment in hospitals (private and government), nursing care facilities, private and chain drug stores, drug manufacturers, wholesale drug houses, and health maintenance organizations. Program graduates are prepared to assist the pharmacist in the packaging and distribution of medication. The technical certificate student will have knowledge of the professional, technical skills necessary for direct employment as a pharmacy technician. Both the certificate and degree students will have spent considerable time in laboratory and clinical training.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	3
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	3
See General Education section, page 49	
<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 . . . . .	2
PHT 171/171LB	Pharmaceutical Calculations . . . . .	4
PHT 172*	Drug Therapy I . . . . .	4
PHT 174/174LB*	Pharmacy Operations. . . . .	3
PHT 178/178LB*	Pharmacy Microcomputers . . . . .	3
PHT 180/180LB*	Sterile Products. . . . .	4
PHT 181*	Interprofessional Relations in Pharmacy . . . . .	3
PHT 182*	Drug Therapy II. . . . .	4
PHT 190LB*	Pharmacy Technician Internship . . . . .	4
PHT 197*	Clinical Seminar . . . . .	2
<b>Subtotal . . . . .</b>	<b>33</b>	

**Total credits as displayed . . . . . 39**

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

## Pharmacy Technology — Associate of Applied Science Degree for Direct Employment

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	3
BIO 100IN or 181IN fulfill three credits of this requirement.	
See General Education section, page 49	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 50	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 50	
<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.

PHT 170	Introduction to Pharmacy Technology . . . . .	2
PHT 171/171LB	Pharmaceutical Calculations . . . . .	4
PHT 172*	Drug Therapy I . . . . .	4
PHT 174/174LB*	Pharmacy Operations . . . . .	3
PHT 178/178LB*	Pharmacy Microcomputers . . . . .	3
PHT 180/180LB*	Sterile Products . . . . .	4
PHT 181*	Interprofessional Relations in Pharmacy . . . . .	3
PHT 182*	Drug Therapy II . . . . .	4
PHT 189*	Pharmacy Technician Administration . . . . .	3
PHT 190LB*	Pharmacy Technician Internship . . . . .	4
PHT 197*	Clinical Seminar . . . . .	2
<b>Subtotal . . . . .</b>		<b>36</b>

### Required Support Courses

BIO 100IN	Biology Concepts	
or BIO 181IN*	General Biology (Majors) I . . . . .	4
CHM 130/130LB/130IN	Fundamental Chemistry	
or CHM 151/151LB/151IN*	General Chemistry I . . . . .	5
CHM 140/140LB/IN*	Fundamental Organic and Biochemistry	
or CHM 152/152LB/152IN*	General Chemistry II . . . . .	5
SPE 120	Business and Professional Communication . . . . .	3
<b>Subtotal . . . . .</b>		<b>17</b>

**Total credits as displayed . . . . . 69-71§**

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

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

*This program provides the basic health care skills students can use as pharmacy technicians. Pharmacy technicians can find employment in hospitals (private and government), nursing care facilities, private and chain drug stores, drug manufacturers, wholesale drug houses, and health maintenance organizations. Program graduates are prepared to assist the pharmacist in the packaging and distribution of medication. The Associate of Applied Science degree student will have the professional, technical skills with additional education in administration, supervisory skills and the basic sciences. Both the certificate and degree students will have spent considerable time in laboratory and clinical training.*



## Physics

A student planning on obtaining a physics degree should follow the **Associate of Science Degree for Transfer**. A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a physics faculty advisor or counselor to plan courses. The student who plans on transferring to an upper division school to complete his/her degree should also contact an advisor from their chosen school for verification of transfer courses.

Program Identification Code:

**AOSSCIENCE**

## Political Science

### Political Science — Associate of Arts Degree for Transfer

Program Identification Code:

**AOAPOLITLSCI**

*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.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6
See General Education section, page 50	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
See General Education section, page 50	
Social and Behavioral Sciences . . . . .	3
POS 100 and 110 fulfill 6 credits of this requirement.	
See General Education section, page 50	
Other Requirements . . . . .	0-3
Second language courses may fulfill this requirement.	
Special Requirements	
POS 110 fulfills the C requirements. The I and G requirements should be fulfilled by courses in the above categories.	
<b>Subtotal . . . . .</b>	<b>26-29</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 . . . . .	3
POS 110	American National Government and Politics . . . . .	3
POS 120	Introduction to International Relations . . . . .	3
POS 140	Introduction to Comparative Politics . . . . .	3
POS 160	Introduction to Political Ideas . . . . .	3
<b>Subtotal . . . . .</b>		<b>15</b>

**Required Support Courses**

Second Language Requirement . . . . .	4-16
Completion of a language course numbered 202*, fourth-semester level, or completion of SPA 204* or SLG 202*. (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.	
Electives . . . . .	0-16
Complete 0-16 transferable credits from the Political Science transfer guide, prerequisite courses for your major or AGAC general education courses, or any transferable courses	
<b>Subtotal. . . . .</b>	<b>16-19</b>
<b>Total credits as displayed . . . . .</b>	<b>60-64§</b>

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

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

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

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

**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-Architecture

## • Pre-Architecture Certificate for Transfer

This Pre-Architecture Certificate is a minimum of 37 credits that will provide a student with an AGEC-A certificate. The student will have completed lower-division general education for the Bachelor of Architecture and the first year, the pre-architecture year, of the five-year program. The certificate will require, for most students, two semesters at Pima Community College including a semester in which the student is co-enrolled at Pima Community College and the University of Arizona.

Many students find it advantageous to co-enroll at the University of Arizona prior to transfer to complete the two pre-architecture courses that are not offered at Pima Community College. The two University of Arizona courses, ARCH 101 and 102, are not required to complete this certificate but are required to begin the first year (second year of the five-year program) of the professional program of the Bachelor of Architecture. ARCH 101 can be completed during the fall semester and ARCH 102 during the spring semester at the University of Arizona. If a student does not co-enroll and does not complete ARCH 101 and 102 while at Pima Community College, the student will have to complete the courses after transferring to the University of Arizona and the Bachelor of Architecture program will be more than a five-year program.

## Pre-Architecture Certificate for Transfer

Program Identification Code:  
**CRTPREARCHIT**

*This program is designed to prepare students to transfer into the Bachelor of Architecture in College of Architecture at the University of Arizona. The Bachelor of Architecture is a five-year program — one pre-architecture year and four in the professional program. If a student needs to complete pre-requisite courses, the program may require more than five years to complete. Admission into the College of Architecture is highly competitive and occurs once each year in June for entry into the fall semester. Students interested in this program should see a University of Arizona College of Architecture advisor.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6-9
See General Education section, page 50	
Biological and Physical Sciences . . . . .	4
PHY 121/121LB/IN fulfills 5 credits of this requirement.	
See General Education section, page 50 for an additional science course.	
Mathematics . . . . .	†
MAT 151 fulfills this requirement.	
Social and Behavioral Sciences . . . . .	6-9
See General Education section, page 50	
Other Requirements . . . . .	0-3
MAT 182 fulfills 3 credits of this requirement. Complete 3 additional credits.	
See General Education section, page 50	
Special Requirements	
The I, C, and G requirements should be fulfilled by courses in the above categories.	
<b>Subtotal . . . . .</b>	<b>25 ¥</b>

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
PHY 121/121LB/IN*	Introductory Physics I . . . . .	5
MAT 151	College Algebra . . . . .	4
MAT 182	Trigonometry . . . . .	3
<b>Subtotal . . . . .</b>		<b>12</b>
UA Architecture Courses . . . . .		0
While these courses are not required for the Pima Community College Certificate, they are required for admission into the UA program. ARCH 101 and 12 are pre-professional courses at the University of Arizona which should be taken concurrently with the above core courses at Pima Community College. See a pre-architecture faculty at the University of Arizona for additional information.		
ARCH 101	Foundation Studio I	
ARCH 102	Foundation Studio II	
<b>Total credits as displayed . . . . .</b>		<b>37</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.

## 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

A student planning on obtaining a degree in Psychology should follow the Associate of Arts Degree for Transfer in Liberal Arts. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Program Identification Code:

**AOALIBRALART**

## Public Administration

Students seeking to transfer to a university and major in Public Administration should see the Business Administration (ABUS) Degree on the online catalog.

See Program Identification

Code for: **AOBBUSIADMIN**

## 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 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 Northern Arizona University's Bachelor of Applied Science Degree in Justice Systems and Policy Planning, and the Fire Science Associate of Applied Science Degree to Arizona State University's East Campus, Bachelor of Applied Science Degree in Fire Service Management. Both ASU (East Campus) and NAU's programs are offered in Tucson.

Educational opportunities at the Institute reflect contemporary issues, current techniques and technology used in public safety and emergency services. Our programs and services focus on the safety and well being of Southern Arizona and the greater community.

When your commissioned and non-commissioned employees enroll in courses which are a part of the Institute, your agency gains professionals who have a greater range of skills, and who have the education to meet the expanding role of your agency. The Institute provides a source for management education and leadership development plus targeted opportunities for professional development.

Our partnerships with public safety agencies are based on mutual respect, mutual trust and mutual benefit. We work together to make effective use of the talent, facilities and resources possessed by each partner.

See the following programs: Administration of Justice, Emergency Medical Technology, Fire Science, Corrections (See contractual), Law Enforcement, Juvenile Corrections (See contractual), and Public Safety Communications. Also see courses in Community Development (CDE).

Telephone: (520) 206-7814

Fax: (520) 206-7783

Diane Hefty, Director

# Public Safety Communications

- Basic Public Safety Communications — Certificate for Direct Employment
- Public Safety Communications — Certificate for Direct Employment

## Basic Public Safety Communications — 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>		
PSC 120	Public Safety Communications I . . . . .	3
PSC 121	Public Safety Communications II . . . . .	3
PSC 130	Communication Center Operations I . . . . .	3
PSC 131	Communication Center Operations II . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>12</b>

Program Identification Code:  
**CRTBSAFETYCM**

*This program is designed to prepare a student to seek employment in the field of Public Safety Communications. Emergency dispatchers work in 9-1-1 centers; police, fire, ambulance services; local, state and federal government; and private agencies. Dispatchers partner with law enforcement, fire, and medical services by receiving telephone calls from persons needing emergency assistance, and dispatching the appropriate aid by using up-to-date technology. This occupation requires the ability to handle large amounts of stress and remain calm under difficult conditions.*

## Public Safety Communications — Certificate for Direct Employment

<b>General Education Requirements - A grade of C or better is required for graduation.</b>		
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement . . . . .		3
See General Education section, page 49		
Analysis and Critical Thinking Requirement . . . . .		3
See General Education section, page 49		
<b>Subtotal . . . . .</b>		<b>6</b>

*continued next page*

Program Identification Code:  
**CRTSAFETYCOM**

## Public Safety Communications — Certificate for Direct Employment *(continued)*



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 . . . . .	1
EMT 110	First Responder . . . . .	3
PSC 120	Public Safety Communications I . . . . .	3
PSC 121	Public Safety Communications II . . . . .	3
PSC 130	Communication Center Operations I . . . . .	3
PSC 131	Communication Center Operations II . . . . .	3
PSC 190*	Field Experience . . . . .	2
PSC 199*	Co-op Related Class in PSC . . . . .	1
PSC 199WK*	Co-op Work in PSC . . . . .	5
SPA 121	Elementary Spanish for Business I . . . . .	4
SSE 242	Crisis Intervention, Theory and Techniques . . . . .	3
STU 130	Stress Management for Wellness . . . . .	3
<b>Subtotal . . . . .</b>		<b>34</b>
<b>Total credits as displayed . . . . .</b>		<b>40</b>

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

## Radiologic Technology

- Radiologic Technology — Associate of Applied Science Degree for Direct Employment
- Radiologic Technology — Magnetic Resonance Imaging Certificate for Direct Employment

Students seeking admission to the Radiologic Technology program must have either completed or be currently enrolled during the fall semester in the following basic requirements before receiving an application:

### Program Prerequisites:

- High School diploma or GED
- Admission to Pima Community College
- Reading assessment test score at the level of, or completion of REA 112
- Math assessment test at the level of MAT 151 or higher, or completion of MAT 122 with a grade of C or higher

Please note: a combined average grade of "B" or better is required for the following courses

- BIO 201IN within the last eight years
- BIO 202IN within the last eight years

### General Requirements

- Total required credits: 65-67 credit hours
- RAD coursework: 52 credit hours
- Other coursework including General Education courses: 13-15 credit hours

### Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program director.

### Minimal Grade Achievement

- Students must receive a grade of C or better in all core courses to progress to the next semester.

## Radiologic Technology — Associate of Applied Science Degree for Direct Employment

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101 and WRT 102* fulfill this requirement.	
Analysis and Critical Thinking Requirement . . . . .	†
Program prerequisites fulfill this requirement.	
Humanities and Social Science Requirement . . . . .	3
PSY 101 fulfills part of this requirement.	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	1-3
See General Education section, page 49	
<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 . . . . .	3
RAD 171/171LB*	Radiographic Positioning I . . . . .	4
RAD 172/172LB*	Medical Imaging Technology I . . . . .	4
RAD 173LB*	Clinical Education I . . . . .	4
RAD 174/174LB*	Radiographic Positioning II . . . . .	4
RAD 175/175LB*	Medical Imaging Technology II . . . . .	4
RAD 176LB*	Clinical Education II . . . . .	6
RAD 177LB*	Clinical Education III . . . . .	9
RAD 181/181LB*	Radiographic Positioning III . . . . .	4
RAD 182/182LB*	Medical Imaging Technology III . . . . .	4
RAD 183LB*	Clinical Education IV . . . . .	6
RAD 184/184LB*	Radiographic Positioning IV . . . . .	4
RAD 185*	Clinical Seminar . . . . .	1
RAD 186LB*	Clinical Education V . . . . .	6
<b>Subtotal . . . . .</b>		<b>63</b>

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

PSY 101*	Introduction to Psychology . . . . .	4
WRT 101*	Writing I . . . . .	3
WRT 102*	Writing II . . . . .	3
<b>Subtotal . . . . .</b>		<b>10</b>

**Total credits as displayed . . . . . 77-79§**

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

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

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

*Radiologic technology is a health sciences program that prepares the student for a career in diagnostic medical imaging. The Associate of Applied Science Degree program enables students to become certified radiologic technologists after successfully completing the medical radiography examination of the American Registry of Radiologic Technologists. The certified technologist has several career alternatives: direct employment in hospitals, clinics and private doctors' offices or, with additional training, specialization in other medical imaging modalities or radiation therapy. Graduates may transfer to a university that offers a Bachelor of Science degree program in the field.*

*Admission to the Radiologic Technology program requires a separate application procedure.*

*Students are encouraged to meet with a radiologic technology program advisor or counselor.*



## Radiologic Technology — Magnetic Resonance Imaging — Certificate for Direct Employment

*Students must have completed the Radiologic Technology Associate of Applied Science Degree prior to enrolling in this certificate.*

*Magnetic Resonance Imaging (MRI) is an advanced medical imaging specialty program that prepares registered radiologic technologists for direct employment in hospitals and clinics, free standing MRI facilities, and with providers of mobile MRI services. This program enables registered technologists to become certified in MRI by the American Registry of Radiologic Technologists (ARRT). Students are encouraged to meet with a radiologic technology program advisor or counselor.*

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
MRI 210*	Introduction to Magnetic Resonance Imaging . . . . .	1
MRI 212*	Physical Principles of Magnetic Resonance Imaging . . . . .	1
MRI 214*	Sectional Anatomy of the Human Body . . . . .	1
MRI 216*	MRI Clinical Education I . . . . .	4
MRI 220*	Imaging Procedures . . . . .	1
MRI 222*	MRI Pathology Detection . . . . .	1
MRI 224*	ARRT Exam Preparation and MRI Physics Re . . . . .	1
MRI 226*	MRI Clinical Education II . . . . .	4
<b>Total credits as displayed . . . . .</b>		<b>14</b>

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

## Real Estate/Brokerage

Pima Community College offers courses in Real Estate/Brokerage. See the course section of the catalog.

Students seeking to transfer to a university and major in Real Estate should see an advisor, follow the university transfer guide, and complete the Associate of Business Administration degree.

See Program Identification  
Code: **AOBBUSIADMIN**

## Reserve Officers Training Corps (ROTC)

ROTC courses are offered to students at Pima Community College (PCC) by the three military departments – Military Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy) – at the University of Arizona. Although students enroll in these ROTC classes at Pima, classes are held on the University of Arizona campus. Students are under no military obligation during their first two years in the program. Interested students are encouraged to contact the appropriate military department prior to enrolling in classes.

Upon entering one of the three programs as a cadet or midshipman, ROTC will provide the student with the necessary course materials and uniforms. These items remain the property of ROTC and must be returned when leaving, or graduating from the program.

Students who complete the first two years of the program at PCC and continue their ROTC training at a four-year institution may receive tax-free subsistence pay of \$100 per month during their junior and senior years at four-year colleges. For further information, students need to contact the ROTC at the University of Arizona.

# Respiratory Therapist

- Respiratory Care — Associate of Applied Science Degree for Direct Employment

Respiratory care is a allied health specialty which deals with the assessment, treatment, management and care of patients with deficiencies and abnormalities associated with respiration and circulation. The Respiratory Therapist program trains students in the therapeutic use of medical gases and their administering devices, environmental control, humidity and aerosol therapy, inhaled medications, chest physiotherapy, airway management, mechanical ventilator management, rehabilitation, home care, and cardiopulmonary resuscitation. Students also learn a variety of techniques used in the diagnosis, monitoring and assessment of patients with cardiopulmonary disorders. Following a physician's orders, respiratory care personnel must work closely with other members of the health care team including physicians, nurses, rehabilitation therapists and other health technologists.

Following completion of this Council on Accreditation of Allied Health Programs (CAAHEP) approved program, the graduate is qualified for immediate employment and for application to the National Board for Respiratory Care (NBRC) for the entry-level certification exam to attain the status of a certified respiratory therapy technician (CRTT) required for state licensure in the state of Arizona. Students may also apply for entry into a baccalaureate program. Upon successful completion of the entry-level examination the graduate is then eligible for the advanced practitioner examinations offered through the NBRC to attain the status of a Registered Respiratory Therapist (RRT). The respiratory therapist usually works in hospitals, special-care facilities, long-term care facilities, home care or rehabilitation. Employment also exists within commercial companies in sales or within contract service agencies. The registered therapist may choose to work strictly as a clinician or in other areas such as management, medical research or education in the hospital, college or university setting.

Admission to the Respiratory Therapist program requires a separate application procedure. Students are encouraged to meet with an advisor or counselor.

Students seeking admission to the Respiratory Therapist program must have completed the following basic requirements before receiving an application:

## Program Prerequisites:

- High School Diploma or GED
- Admission to Pima Community College
- Reading assessment test score at the level of, or completion of REA 112
- MAT 122 with a grade of C or better
- BIO 160IN with a grade of C or better
- CHM 130/130LB/130IN with a grade of C or better
- WRT 101 with a grade of C or better

## General Requirements

- Total required credits: 68-70 credit hours
- RTH coursework: 54 credit hours
- Other courses including General Education courses: 14-16 credit hours

## Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program coordinator and department chairperson.

## Minimal Grade Achievement

- Students must receive a grade of C or better in all core courses to progress to the next semester.

## Respiratory Care — Associate of Applied Science Degree for Direct Employment

*The Respiratory Therapist program gives the theory and practice to prepare students for jobs as respiratory therapists. It also prepares the student for transfer into four-year programs.*

*The Associate degree program consists of five semesters of professional (RTH) and support courses. Students who are accepted into the program and complete all required courses will be scheduled to enter the hospital portion of their program beginning with the second semester. Graduates of the Respiratory Therapist program will receive an Associate of Applied Science degree in respiratory care.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	†
WRT 101 and WRT 102* fulfill this requirement	
Analysis and Critical Thinking Requirement . . . . .	†
MAT 122 and BIO 205IN fulfill this requirement	
Humanities and Social Science Requirement . . . . .	3
PSY 101 fulfills 4 credits of this requirement	
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
Core courses fulfill 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.

RTH 110*	Introduction to Respiratory Care . . . . .	4
RTH 112*	Respiratory Physiology . . . . .	4
RTH 121*/121LB	Basic Therapeutics in Respiratory Care . . . . .	5
RTH 123*/123LB	Basic Assessment and Monitoring . . . . .	4
RTH 124*	Pharmacology for Respiratory Care . . . . .	3
RTH 125*	Clinical Procedures I . . . . .	1
RTH 135*	Clinical Procedures II . . . . .	4
RTH 241*/241LB	Critical Care Therapeutics . . . . .	5
RTH 243*/243LB	Advanced Assessment and Monitoring . . . . .	4
RTH 245LB*	Clinical Procedures III . . . . .	4
RTH 246*	Cardiorespiratory Disorders I . . . . .	3
RTH 251*	Advanced and Specialty Therapeutics . . . . .	5
RTH 255*	Clinical Procedures IV . . . . .	4
RTH 256*	Cardiorespiratory Disorders II . . . . .	3
RTH 257LB*	Clinical Applications and Professional Development . . . . .	1
<b>Subtotal . . . . .</b>		<b>54</b>

### Support Courses

BIO 205IN*	Microbiology . . . . .	4
WRT 102*	Writing II . . . . .	3
PSY 101	Introduction to Psychology . . . . .	4
<b>Subtotal . . . . .</b>		<b>11</b>

**Total credits as displayed . . . . . 68§**

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

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

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

## Social Services

- Social Services — Associate of Applied Science Degree for Direct Employment
- Social Services — Associate of Arts Degree for Transfer
- Social Services Substance Abuse Specialty — Associate of Applied Science Degree for Direct Employment
- Social Services Youth Services Specialty — Associate of Applied Science Degree for Direct Employment
- Basic Social Services Certificate
- Basic Social Services Substance Abuse Certificate
- Basic Social Services Domestic Violence Intervention Certificate
- Social Services Community Health Advisor-Certificate
- Developmental Disabilities Rehabilitation Certificate for Direct Employment

*There are two degree programs available:* a two-year **Associate of Applied Science (AAS)** for direct employment and a two-year **Associate of Arts Degree for Transfer (AA)** to a university. Students are strongly recommended to see a Social Service faculty advisor or counselor and obtain a transfer guide if they plan to transfer to a four-year college or university.

The Social Service Associate degree programs develop skills and knowledge for working with clients, conducting inters, collecting data, making home visits, working as a team member, determining treatment actions, performing outreach and advocacy, and acting as a link between the professional care giver and the client. In addition, the skill/knowledge base includes identification of community resources, recognizing power bases in the community, application of models for social change and utilization of resources in serving clients.

The substance abuse specialty degrees add a skill and knowledge base which emphasizes treatment modes, including the physiological and psychological effects of drugs and alcohol, current legislation and legal aspects of the drug situation, case management and other topics important to substance abuse rehabilitation.

The youth services specialty degrees add a skill and knowledge base which emphasizes the normal development needs of children and adolescents, the causes and consequences of delinquency, dependency, and other problems unique to youth, the special care and treatment needs of youth in out-of-home placements (foster care, group homes, shelters, residential treatment, detention facilities, etc.), and the need to mobilize community resources to support youth in healthy communities and prevent delinquency, dependency, teen pregnancy, substance addiction, teenage suicide, HIV/AIDS, youth gangs, and other problems of youth.

In addition to the Associate degree programs, four certificates are offered, which are designed as a second major for students in other Associate degree programs or as skill building for those individuals who are already employed in industry, business and human services. While this course work is not necessarily intended to qualify individuals for employment, as does the Associate degree, it will enhance understanding of social welfare, substance abuse, eating disorders, and domestic violence issues. Those interested in pursuing one of these certificates are encouraged to consider an associate degree appropriate to their interests.

The certificate in Social Services provides core skills for and understanding of social welfare, agencies, groups and those in need on a one-to-one basis.

The certificate in substance abuse provides core understanding of drug and alcohol use, abuse, treatment modalities and political/legal aspects of substance abuse in society.

The certificate in domestic violence intervention provides core understanding of the causes and cures of domestic violence, crisis intervention and alternative treatment methods to this problem which crosses racial, economic and social boundaries.

Those seeking an Associate degree must fulfill minimum general education requirements set by Pima Community College to graduate. A grade of "D" in a core course or in the SSE elective requirement will not fulfill graduation requirements for an Associate degree or certificate in Social Services. Students applying for graduation in an Associate degree program must demonstrate competency in reading.

The Social Services Field Experience (SSE 190) is required for those seeking the Associate of Applied Science degree in Social Services or the Social Services Substance Abuse Specialty. SSE 191, Field Placement Gerontology I, and SSE 291, Field Placement Gerontology II, are required for those seeking the Social Services Gerontology Specialty Associate of Applied Science degree. The Associate of Arts Degree for Transfer in the Social Services Gerontology Specialty requires completing only SSE 191, Field Placement Gerontology I. In these courses, the student performs a minimum of 240 hours of supervised work in a helping setting relevant to his/her career interests. While it is highly recommended for all students in Social Services, it is not required for those seeking a certificate or an Associate of Arts Degree for Transfer. Students who plan to transfer to a four-year college or university can meet the first and second year general education requirements at Pima Community College but must check the requirements of the school they plan to attend. All Social Services majors are strongly urged to talk with a Social Services faculty advisor or counselor about the best way to schedule classes.



## Social Services — Associate of Applied Science Degree for Direct Employment

Program Identification Code:

**AASSOCIALSRV**

*The Social Services program prepares students for employment in many community service agencies and lays the foundation for continuing education in the helping professions. The skill and knowledge base will qualify the student for entry-level employment in mental health, substance abuse treatment, domestic violence intervention, gerontology, eating disorders, child care, retardation counseling, welfare delivery, community outreach, client advocacy and other service oriented positions.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement	6	
See General Education section, page 49		
Analysis and Critical Thinking Requirement	6	
See General Education section, page 49		
Humanities and Social Science Requirement	6	
See General Education section, page 49		
Computer and Information Literacy Requirement	1-3	
See General Education section, page 49		
<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.

SSE 110	Introduction to Social Welfare	3
SSE 111	Group Work	3
SSE 202	Casework Methods I	3
SSE 210*	Community Organization and Development	3
SSE 211*	Group Technique Applications	3
SSE 212*	Casework Methods II	3
SSE 292*	Social Services Field Experience	4
<b>Subtotal</b>		<b>22</b>

### Required Support Courses

SSE Electives:	3	
May be fulfilled by taking an SSE course which is not listed as a core course.		
Electives	18	
Please see an advisor to select appropriate course work.		
<b>Subtotal</b>	<b>21</b>	

**Total credits as displayed 62-64§**

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

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

## Social Services — Associate of Arts Degree for Transfer

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	3
PHI 101 or 130 fulfills three credits of this requirement. Complete an Art List course.	
See General Education section, page 50	
Biological and Physical Sciences . . . . .	†
The two BIO courses required in the support courses fulfill this requirement	
Mathematics . . . . .	†
The MAT course required in the support courses fulfills this requirement	
Social and Behavioral Sciences . . . . .	†
SSE 110 and ECN 202 fulfill this requirement	
See General Education section, page 50	
Other Requirements . . . . .	†
CIS 100 and SPE 120 fulfill this requirement	
Special Requirements	
BIO 127 and SPE 120 fulfill the I, C and G requirements	
<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.

SSE 110	Introduction to Social Welfare . . . . .	3
SSE 111	Group Work. . . . .	3
SSE 202	Casework Methods I. . . . .	3
SSE 210*	Community Organization and Development . . . . .	3
SSE 211*	Group Technique Applications. . . . .	3
SSE 212*	Casework Methods II . . . . .	3
SSE Electives . . . . .		3
<b>Subtotal</b> . . . . .		<b>21</b>

### Required Support Courses

BIO 127IN	Human Nutrition & Biology . . . . .	4
BIO 156IN	Human Biology for Allied Health	
or BIO160IN	Introduction to Human Anatomy and Physiology. . . . .	4
CIS 100*	Introduction to Computers . . . . .	3
ECN 202*	Macroeconomic Principles. . . . .	3
JRN 101*	Introduction to Reporting and Media Writing . . . . .	3
MAT 142 *	Topics in College Mathematics	
or MAT151*		
or	any MAT Course numbered 151 or above . . . . .	3 - 4
PHI 101	Introduction to Philosophy	
or PHI 130	Introductory Studies in Ethics and Social Philosophy . . . . .	3
PSY 101	Introduction to Psychology. . . . .	4
PSY 230*	Psychological Measurements and Statistics . . . . .	3
SPE 120	Business and Professional Communication. . . . .	3

*continued next page*

Program Identification Code:  
**AOASOCIALSRV**

*The Social Services program prepares students for employment in many community service agencies and lays the foundation for continuing education in the helping professions. The skill and knowledge base will qualify the student for entry-level employment in mental health, substance abuse treatment, domestic violence intervention, gerontology, eating disorders, child care, retardation counseling, welfare delivery, community outreach, client advocacy and other service oriented positions. This program prepares students to pursue studies in social work, rehabilitation, child development and family relations, psychology, sociology, counseling and other disciplines offered at four-year universities.*

## Social Services — Associate of Arts Degree for Transfer *(continued)*



Language requirement: 4th semester proficiency in a language is required by ASU. This proficiency may be demonstrated through completion of a language course numbered 202 or via assessment at ASU. If the student completes credit courses to reach fourth-semester proficiency while at PCC, the requirement will be fulfilled but the credits may not transfer.

**Subtotal . . . . . 33-34**

**Total credits as displayed . . . . . 63-64§**

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

† Support or core course(s) fulfill this requirement.

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

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

## Social Services Substance Abuse Specialty — Associate of Applied Science Degree for Direct Employment

Program Identification Code:  
**AASSUBSTABUS**

*The substance abuse specialty degrees provide a skill and knowledge base which emphasizes treatment modes, including the physiological and psychological effects of drugs and alcohol, current legislation and legal aspects of the drug situation, case management, and other topics important to substance abuse rehabilitation.*

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

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

Communication Requirement . . . . . 6

See General Education section, page 49

Analysis and Critical Thinking Requirement . . . . . 6

See General Education section, page 49

Humanities and Social Science Requirement . . . . . 6

See General Education section, page 49

Computer and Information Literacy Requirement . . . . . 1-3

See General Education section, page 49

**Subtotal . . . . . 19-21**

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

SSE 110	Introduction to Social Welfare . . . . .	3
SSE 111	Group Work . . . . .	3
SSE 121	Study of Substance Abuse . . . . .	3
SSE 123	Substance Abuse Prevention . . . . .	3
SSE 202	Casework Methods I . . . . .	3
SSE 210*	Community Organization and Development . . . . .	3
SSE 211*	Group Technique Applications . . . . .	3
SSE 212*	Casework Methods II . . . . .	3
SSE 220*	Treatment of the Substance Abuser . . . . .	3
SSE 222*	Political and Legal Aspects of Drug Use . . . . .	3
SSE 292*	Social Services Field Experience . . . . .	4
<b>Subtotal . . . . .</b>		<b>34</b>

**Required Support Courses**

Electives .....	9
Please see an advisor to select appropriate course work.	
<b>Total credits as displayed .....</b>	<b>62-64§</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.+

**Social Services Substance Abuse Specialty**

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**

Students seeking to transfer to a university and major in Asian Studies should see an advisor, follow the university transfer guide, and complete the Associate of Arts in Liberal Arts degree.

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement .....	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement .....	6
See General Education section, page 49	
Humanities and Social Science Requirement .....	6
See General Education section, page 49	
Computer and Information Literacy Requirement .....	1-3
See General Education section, page 49	
<b>Subtotal .....</b>	<b>19-21</b>

Program Identification Code:  
**AASYOUTHSERV**

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

AJS 212	Juvenile Justice Procedures .....	3
ECE 117*	Child Growth and Development .....	3
SSE 110	Introduction to Social Welfare .....	3
SSE 111	Group Work .....	3
SSE 146	Child Abuse Intervention and Protection .....	3
SSE 160	Introduction to Youth Services .....	3
SSE 202	Casework Methods I .....	3
SSE 210*	Community Organization and Development .....	3
SSE 211*	Group Technique Applications .....	3
SSE 260*	Youth Services: Policy, Practice and Prevention .....	3
SSE 290*	Field Experience Youth Services .....	4
<b>Subtotal .....</b>		<b>34</b>

*continued next page*



## Social Services Youth Services Specialty — Associate of Applied Science Degree for Direct Employment *(continued)*

### Required Support Courses

Electives .....	9
Please see an advisor to select appropriate course work.	
<b>Total credits as displayed .....</b>	<b>62-64§</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.

## Social Services Youth Services Specialty

See the Social Services Associate of Arts Degree for Transfer.

Use Program Identification  
Code: **AOASOCIALSRV**

## Basic Social Services Certificate

Program Identification Code:  
**CRTSOCIALSRV**

*The certificate in Social Services provides core skills for and understanding of social welfare, agencies, groups and those in need on a one-to-one basis.*

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. ....	3
SSE 111	Group Work. ....	3
SSE 202	Casework Methods I. ....	3
SSE 210*	Community Organization and Development .....	3
SSE 211*	Group Technique Applications. ....	3
SSE 212*	Casework Methods II .....	3
<b>Total credits as displayed .....</b>		<b>18</b>

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

## Basic Social Services Substance Abuse Certificate

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. . . . .	3
SSE 121	Study of Substance Abuse. . . . .	3
SSE 123	Substance Abuse Prevention. . . . .	3
SSE 202	Casework Methods I. . . . .	3
SSE 220*	Treatment of the Substance Abuser. . . . .	3
SSE 222*	Political and Legal Aspects of Drug Use. . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>18</b>

\*For additional prerequisite information, check course section.

Program Identification Code:  
**CRTSUBSTABUS**

*The certificate in substance abuse provides core understanding of drug and alcohol use, abuse, treatment modalities and political/legal aspects of substance abuse in society.*

## Basic Social Services Domestic Violence Intervention Certificate

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. . . . .	3
SSE 110	Introduction to Social Welfare. . . . .	3
SSE 140	Domestic Violence: Causes and Cures. . . . .	3
SSE 146	Child Abuse Intervention and Protection. . . . .	3
SSE 202	Casework Methods I. . . . .	3
SSE 242*	Crisis Intervention, Theory and Techniques. . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>18</b>

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

Program Identification Code:  
**CRTDOMESVIOL**

*The certificate in domestic violence intervention provides core understanding of the causes and cures of domestic violence, crisis intervention and alternative treatment methods to this problem which crosses racial, economic and social boundaries.*

## Social Services Community Health Advisor — Certificate

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
HED 140	First Aid and Cardiopulmonary Resuscitation. . . . .	1
SSE 110	Introduction to Social Welfare. . . . .	3
SSE 170	Community Health Advising. . . . .	3
SSE 293*	Community Health Advising Field Experience. . . . .	6
<b>Subtotal . . . . .</b>		<b>13</b>
Communication		
One Writing, Computer, Speech, or Language course 100 level or higher. . . . .		3
<b>Total credits as displayed . . . . .</b>		<b>16</b>

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

Program Identification Code:  
**CRTHEALTHADV**

*The Community Health Advisor certificate provides training in health promotion and disease prevention education services. The curriculum prepares students for community assessments and case findings, health advocacy, and provision of one-to-one basic direct services for families and clients in their homes and other neighborhood settings.*

## Developmental Disabilities Rehabilitation Certificate for Direct Employment

Program Identification Code:  
**CRTREHABSVS**

*A program of study for paraprofessionals who assist individuals with developmental disabilities. The program will prepare students for employment in residential settings serving clients with developmental disabilities. Academic preparation focuses on rehabilitation services, social services, and assistive technology devices, as well as field experience working with people with disabilities in residential settings.*

Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
EDU 261	Introduction to Rehabilitation Services . . . . .	3
EDU 262*	Assistive Technology for Individuals with Disabilities . . . . .	3
SSE 110	Introduction to Social Welfare. . . . .	3
SSE 111	Group Work. . . . .	3
SSE 202	Casework Methods I. . . . .	3
SSE 294	Disability Rehabilitation Services Field Experience . . . . .	3
<b>Subtotal. . . . .</b>		<b>18</b>
<b>Total credits as displayed . . . . .</b>		<b>18</b>

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

## Sociology

- Sociology — Associate of Arts Degree for Transfer

### Sociology — Associate of Arts Degree for Transfer

Program Identification Code:  
**AOASOCIOLOGY**

*The Associate of Arts Degree for Transfer in Sociology prepares the student to transfer to a four-year college or university and pursue a degree in sociology. After successfully completing this program students should be eligible to take upper division classes at a four-year institution. Students should consult the catalog for the institution to which they plan to transfer in order to establish the graduation and sociology major requirements and determine the transferability of Pima College courses.*

<b>Arizona General Education Curriculum Requirements (AGEC-A) -</b>	
<b>A grade of C or better is required for graduation.</b>	
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course. . . . .	
English Composition . . . . .	6
See General Education section, page 50	
Humanities and Fine Arts . . . . .	6-9
See General Education section, page 50	
Biological and Physical Sciences . . . . .	8
See General Education section, page 50	
Mathematics . . . . .	3
See General Education section, page 50	
Social and Behavioral Sciences . . . . .	3
SOC 101 and 201 or 204 fulfill 6 credits of this requirement.	
Complete a non-SOC course from the General Education section, see page 50	
Other Requirements . . . . .	0-3
See General Education section, page 50	
Special Requirements	
SOC 120 and 203 fulfill the I, C and G requirement.	
<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>		
SOC 101	Introduction to Sociology . . . . .	3
SOC 201 or SOC 204	Minority Relations and Urban Society Gender Identities, Interactions and Relations . . . . .	3
Sociology Elective . . . . .		3
Select one course from the following:		
SOC103*	Explorations in Prejudice	
SOC120*	Current Social Problems	
SOC127	Marriage and the Family	
SOC166	Social Gerontology	
SOC203	Sociology of Utopia	
<b>Subtotal . . . . .</b>		<b>9</b>
<b>Required Support Courses</b>		
Second Language Requirement . . . . .		16
Completion of a language course numbered 202* fourth semester level, or completion of SPA 202* or SLG 202* (Bilingual or international students should consult an advisor or counselor concerning exceptions to this requirement.) If a student satisfies the language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum Associate degree requirement of 60 credit hours.		
Electives . . . . .		6-10
Complete 6-10 transferable credits using courses from the transfer guide, prerequisite courses to your major or general education courses, or any transferable courses.		
<b>Subtotal. . . . .</b>		<b>22-26</b>
<b>Total credits as displayed . . . . .</b>		<b>60-64§</b>

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

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

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





## Spanish

A student planning on obtaining a degree with an option in Spanish should follow the **Associate of Arts Degree for Transfer in Liberal Arts**. See an advisor or counselor and complete a program of study form using the Transfer Guide.

Program Identification Code:

**AOALIBRALART**

## Speech Communication

- Speech Communication — Emphasis for Transfer

The Speech Communication area offers courses which help prepare students for careers requiring extensive interaction with the public: advertising, business, counseling, education, healthcare, international relations, law, politics, public relations, sales, social services, technology, and theology. This course of study develops and improves skills in public address, interpersonal communication, and group communication for social and career settings. Through the Associate of Arts Degree for Transfer in Liberal Arts (Program Identification Code: AOALIBRALART) students can transfer to a four year institution.

A student planning on obtaining a degree with a major in Speech Communication and transferring to Arizona State University (ASU), Northern Arizona University (NAU) or the University of Arizona (UA) should:

Complete the following Speech Communication courses:

- SPE 102 Introduction to Speech Communication
- SPE 110 Public Speaking
- SPE 120 Business and Professional Communication
- SPE 124 Argumentation
- SPE 130 Small Group Discussion
- SPE 136 Oral Interpretation of Literature

Complete the Associate of Arts Degree for Transfer in Liberal Arts:

Use the AA Degree for Transfer in Liberal Arts display in this catalog as a guide. Specifically:

- Complete two of the following three courses. ANT 102, JRN 102, PSY 250 to complete the Social and Behavioral Science

General Education requirement

- Complete the Second Language Requirement: Completion of a Language course numbered 202, or completion of SPA 202 or SLG 202

Complete the Arizona General Education Curriculum (AGEC-A)

See a Speech Communication advisor/counselor to complete a program of study form using the Transfer Guide for ASU, NAU or UA. Students transferring to other institutions should consult the specific requirements of the institution to which they plan to attend.

Use Program Identification

Code: **AOALIBRALART**

# Technology

- Technology — Certificate for Direct Employment
- Automated Systems Technology — Associate of Applied Science Degree for Direct Employment
- Electronics Systems Technology — Associate of Applied Science Degree for Direct Employment
- Computer Technology — Certificate for Direct Employment
- Information Technology Specialist — Associate of Applied Science Degree for Direct Employment
- Electro-Optical Assembly and Testing Certificate for Direct Employment
- Optical Manufacturing — Certificate for Direct Employment
- Optical Systems Technology — Associate of Applied Science Degree for Direct Employment

The following programs offer many opportunities for students seeking employment in the developing fields associated with emerging high-technology industries. Almost fifty percent of the courses (core courses) are common to each program. The common core helps the student who wishes to change from one specialty to another or to attain degrees in two or more specialties.

The Pima Community College Technology program (TEC) contains four certificates and six Associate of Applied Science (A.A.S.) degree programs for direct employment. The certificate programs are arranged so that the student wishing to continue for the Associate of Applied Science degree in one or more of the specialties can do so easily, requiring a minimum of additional courses.

In alignment with documented advice from employers, the Technology curriculum puts great emphasis on technical communications, testing and measurement, proper use of tools, statistical quality and experimentation, team problem solving, safety, reliability, general principles of technology, and the basic sciences that are appropriate for the specialty. Specialties include courses on electricity, electronics, electro-mechanics, electronic communications, optoelectronics and special manufacturing processes as needed. Mathematics (essentially without calculus) is applied throughout the program.

Students should plan to take assessment tests in reading, writing, mathematics, and technology prior to registering for these courses.

## Technology — Certificate for Direct Employment

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

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

Communication Requirement . . . . . †  
SPE 120 fulfills this requirement.

Analysis and Critical Thinking Requirement . . . . . †  
TEC 113 fulfills this requirement.

**Subtotal . . . . . 0**

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

TEC 101*	Physics for Technology . . . . .	3
TEC 103*	Light and Optical Systems . . . . .	2
TEC 121/121LB*	Basic Electric and Magnetic Properties . . . . .	4
TEC 122/122LB*	Applied Semiconductor Devices . . . . .	4
TEC 123/123LB*	Digital Circuits and Computers . . . . .	4
TEC 125/125LB*	AC Networks with Phasors . . . . .	4
TEC 126*	Electronics Construction and Assembly . . . . .	3
TEC 171*	Statistical Process Control and Experimentation . . . . .	3
<b>Subtotal . . . . .</b>		<b>27</b>

### Required Support Courses

SPE 120	Business and Professional Communications . . . . .	3
TEC 113*	Problem Solving for Electronics and Optics . . . . .	3
TEC 160*	Microcomputers and Programming Techniques . . . . .	3
<b>Subtotal . . . . .</b>		<b>9</b>
<b>Total credits as displayed . . . . .</b>		<b>36</b>

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

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

Program Identification Code:  
**CRTECHNOLGY**

*This program provides the common core plus one optics course of the Technology curriculum. Thus, the student wishing to continue for the Associate of Applied Science degree in any of the technology specialties may do so with ease. This certificate will help prepare the student for limited entry level positions in a number of areas including electronic systems, automated systems, information systems, and optical systems.*

## Automated Systems Technology — Associate of Applied Science Degree for Direct Employment

Program Identification Code:

**AASTECSEMCON**

*This program enables the student to prepare for employment in microchip fabrication and industries with automated systems. It contains the common core of the Technology curriculum and adds courses on optics, vacuum systems, fluidic devices, automated systems, power RF, and semiconductor manufacturing processes. Students are encouraged to enroll in TEC 290 during their last semester in addition to courses listed in this program.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	†
TEC 113 and TEC 101 fulfill this requirement.	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
Core or support course 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.

TEC 101*	Physics for Technology . . . . .	3
TEC 103*	Light and Optical Systems . . . . .	2
TEC 113*	Problem Solving for Electronics and Optics . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties . . . . .	4
TEC 122/122LB*	Applied Semiconductor Devices . . . . .	4
TEC 123/123LB*	Digital Circuits and Computers . . . . .	4
TEC 125/125LB*	AC Networks with Phasors . . . . .	4
TEC 126*	Electronics Construction and Assembly . . . . .	3
TEC 130/130LB*	Computer Assembly and Testing . . . . .	4
TEC 171*	Statistical Process Control and Experimentation . . . . .	3
TEC 221*	Linear Devices . . . . .	3
TEC 222/222LB*	Electromechanical Devices and Systems . . . . .	4
TEC 225/225LB*	Fluid Devices and Automated Systems . . . . .	3
TEC 272*	Semiconductor Manufacturing Processes I . . . . .	3
TEC 274/274LB*	Vacuum Systems and Power RF . . . . .	3
<b>Subtotal</b> . . . . .		<b>50</b>

### Required Support Course

TEC 160*	Microcomputers and Programming Techniques . . . . .	3
<b>Total credits as displayed</b> . . . . .		<b>65§</b>

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

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

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

## Electronics Systems Technology — Associate of Applied Science Degree for Direct Employment

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

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

Communication Requirement . . . . . 6  
See General Education section, page 49

Analysis and Critical Thinking Requirement . . . . . †  
TEC 101 and TEC113 fulfill this requirement

Humanities and Social Science Requirement . . . . . 6

See General Education section, page 49

Computer and Information Literacy Requirement . . . . . †  
Core or support course fulfills this requirement.

**Subtotal . . . . . 12**

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

TEC 101*	Physics for Technology . . . . .	3
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TEC 103*	Light and Optical Systems . . . . .	2
----------	-------------------------------------	---

TEC 113*	Problem Solving for Electronics and Optics. . . . .	3
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TEC 121/121LB*	Basic Electric and Magnetic Properties. . . . .	4
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TEC 122/122LB*	Applied Semiconductor Devices . . . . .	4
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TEC 123/123LB*	Digital Circuits and Computers . . . . .	4
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TEC 125/125LB*	AC Networks with Phasors . . . . .	4
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TEC 126*	Electronics Construction and Assembly . . . . .	3
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TEC 128/128LB*	Electronic Measurements . . . . .	3
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TEC 130/130LB*	Computer Assembly and Testing . . . . .	4
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TEC 171*	Statistical Process Control and Experimentation . . . . .	3
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TEC 221*	Linear Devices . . . . .	3
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TEC 222/222LB*	Electromechanical Devices and Systems . . . . .	4
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TEC 250/250LB*	Digital Devices . . . . .	5
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TEC 251/251LB*	Analog Circuits . . . . .	4
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**Subtotal . . . . . 53**

### Required Support Course

TEC 160*	Microcomputers and Programming Techniques . . . . .	3
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**Total credits as displayed . . . . . 68§**

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

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

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

Program Identification Code:  
**AASTECELECTR**

*This program enables the student to prepare for employment in general electronics.*

*Containing the common core courses of the Technology Curriculum, it allows the student to attain competencies along a broad range of topics including basic electricity, digital and analog devices and circuits, electronics construction and measurement, technical communications and team problem solving, statistical process control and experimentation, and electromechanical systems.*



## Computer Technology — Certificate for Direct Employment

Program Identification Code:  
**CRTTECCOMPUT**

*This program provides the student with basic core courses that will help prepare the student for limited entry level positions in some computer arenas.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement	.....	3
See General Education section, page 49		
Analysis and Critical Thinking Requirement	.....	†
TEC 113 fulfills this requirement		
<b>Subtotal</b>	.....	<b>3</b>

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

TEC 101*	Physics for Technology	3
TEC 103*	Light and Optical Systems	2
TEC 113*	Problem Solving for Electronics and Optics	3
TEC 121/121LB*	Basic Electric and Magnetic Properties	4
TEC 123/123LB*	Digital Circuits and Computers	4
TEC 125/125LB*	AC Networks with Phasors	4
TEC 130/130LB*	Computer Assembly and Testing	4
TEC 132/132LB*	Computer Systems Servicing	4
<b>Subtotal</b>	.....	<b>28</b>

### Required Support Course

TEC 160*	Microcomputers and Programming Techniques	3
<b>Total credits as displayed</b>	.....	<b>34</b>

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

## Information Technology Specialist — Associate of Applied Science Degree for Direct Employment

Program Identification Code:  
**AASTECCNETWRK**

*This program focuses on computer technology and the various means through which computers are networked to provide services. Including industry-driven common core courses of the Technology curriculum, it provides the student with additional information to achieve technical competencies in microcomputer assembly and testing, microcomputer systems servicing, dedicated*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement	.....	6
See General Education section, page 49		
Analysis and Critical Thinking Requirement	.....	†
TEC 101 and TEC 113 fulfill this requirement.		
Humanities and Social Science Requirement	.....	6
See General Education section, page 49		
Computer and Information Literacy Requirement	.....	†
Core or support course fulfills this requirement.		
<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>		
TEC 101*	Physics for Technology . . . . .	3
TEC 113*	Problem Solving for Electronics and Optics . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties . . . . .	4
TEC 122/122LB*	Applied Semiconductor Devices . . . . .	4
TEC 123/123LB*	Digital Circuits and Computers . . . . .	4
TEC 130/130LB*	Computer Assembly and Testing . . . . .	4
TEC 132/132LB*	Computer Systems Servicing . . . . .	4
TEC 230/230LB*	Peer-to-Peer Networking and Cabling . . . . .	4
TEC 232/232LB*	Dedicated Server Networks . . . . .	4
TEC 235*	Interconnecting Network Devices . . . . .	3
TEC 236*	Underpinnings of the Internet . . . . .	3
TEC 237/237LB*	Contemporary Client/Server Computing . . . . .	3
TEC 239*	UNIX/Linux Support and Service . . . . .	4
<b>Subtotal . . . . .</b>		<b>47</b>
<b>Support Course</b>		
TEC 160*	Microcomputers and Programming Techniques . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>62§</b>

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

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

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

server networks, networks of the Internet, networks and operating systems, and client server computing. Additional emphasis is placed on the important matter of remaining current and growing professionally in a rapidly changing technical environment. It is recommended that students seeking immediate employment in this field take TEC 290 in addition to the program courses.

This course should be taken in the last semester of enrollment.

## Electro-Optical Assembly and Testing 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>		
TEC 101*	Physics for Technology . . . . .	3
TEC 113*	Problem Solving for Electronics and Optics . . . . .	3
TEC 117*	Optical Assembly Techniques . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties . . . . .	4
TEC 126*	Electronics Construction and Assembly . . . . .	3
<b>Subtotal . . . . .</b>		<b>16</b>
<b>Total credits as displayed . . . . .</b>		<b>16</b>

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

Program Identification Code:  
**CRTOPTICTECB**

Students completing this certificate will have entry level skills in the following areas: basic electronic soldering and assembly techniques, optical inspection methods and standards, assembly of optical components and systems, and optical shop protocol and safety.

## Optical Manufacturing — Certificate for Direct Employment

Program Identification Code:  
**CRTOPTICTECA**

*Students completing this certificate will have completed the requirements for the Electro-Optical Assembly and Testing certificate with additional coursework in basic electric and magnetic properties, applied semiconductor devices, ac networks with phasors, geometric optics, wave optics and advanced coursework in fiber optics installation and testing.*

Course Number	Course Title	Credit Hours
<b>General Education Requirements - A grade of C or better is required for graduation.</b>		
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement		†
WRT 154 fulfills this requirement		
Analysis and Critical Thinking Requirement		†
TEC 113 fulfills this requirement		
<b>Subtotal</b>		<b>0</b>
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
TEC 101*	Physics for Technology	3
TEC 113*	Problem Solving for Electronics and Optics	3
TEC 117*	Optical Assembly Techniques	3
TEC 121/121LB*	Basic Electric and Magnetic Properties	4
TEC 122/122LB*	Applied Semiconductor Devices	4
TEC 125/125LB*	AC Networks with Phasors	4
TEC 126*	Electronics Construction and Assembly	3
TEC 140*	Geometric Optics	2
TEC 141*	Wave Optics	3
TEC 286*	Fiber Optics Installation and Testing	3
<b>Subtotal</b>		<b>32</b>
<b>Required Support Course</b>		
WRT 154*	Career Communications	3
<b>Total credits as displayed</b>		<b>35</b>

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

## Optical Systems Technology — Associate of Applied Science Degree for Direct Employment

Program Identification Code:  
**AASOPTICSTEC**

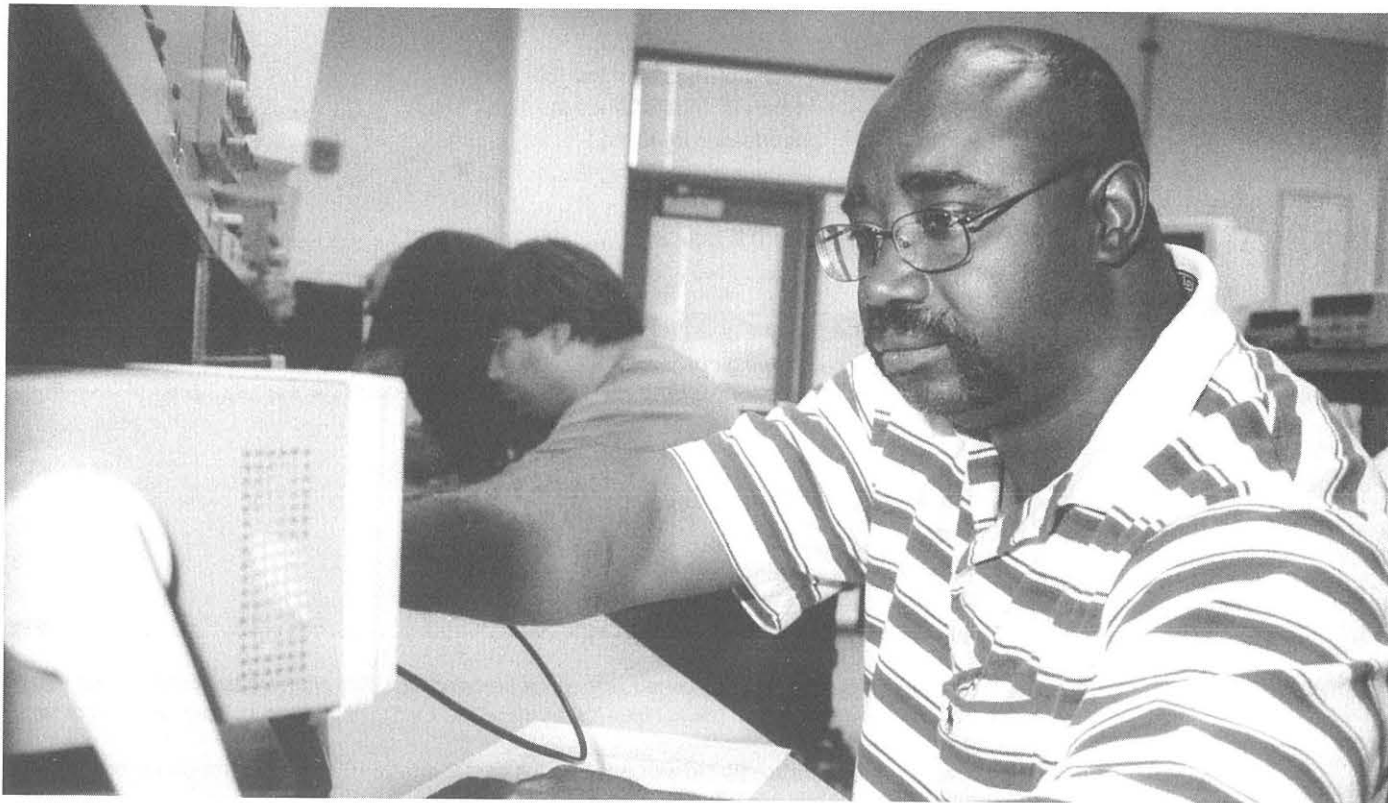
*Students graduating with an Associate of Applied Science Degree in Optoelectronics will have completed the basic core requirements for Technology and the both certificates in Electro-Optical Assembly Testing and Optical Manufacturing. Students will also learn to calibrate and test optical systems and learn the fundamentals of laser technology.*

<b>General Education Requirements - A grade of C or better is required for graduation.</b>		
Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.		
Communication Requirement		6
See General Education section, page 49		
Analysis and Critical Thinking Requirement		†
TEC 101 and TEC 113 fulfill 3 this requirement.		
See General Education section, page 49		
Humanities and Social Science Requirement		6
See General Education section, page 49		
Computer and Information Literacy Requirement		†
Core or support course fulfills this requirement.		
<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>		
TEC 101*	Physics for Technology . . . . .	3
TEC 113*	Problem Solving for Electronics and Optics . . . . .	3
TEC 117*	Optical Assembly Techniques . . . . .	3
TEC 121/121LB*	Basic Electric and Magnetic Properties . . . . .	4
TEC 122/122LB*	Applied Semiconductor Devices . . . . .	4
TEC 123/123LB*	Digital Circuits and Computers . . . . .	4
TEC 125/125LB*	AC Networks with Phasors . . . . .	4
TEC 126*	Electronics Construction and Assembly . . . . .	3
TEC 130/130LB	Computer Assembly and Testing . . . . .	4
TEC 140*	Geometric Optics . . . . .	2
TEC 141*	Wave Optics . . . . .	3
TEC 171*	Statistical Process Control and Experimentation . . . . .	3
TEC 274/274LB*	Vacuum Systems and Power RF . . . . .	3
TEC 284*	Calibration of Optical Systems . . . . .	3
TEC 286*	Fiber Optics Installation and Testing . . . . .	3
TEC 287*	Laser Fundamentals . . . . .	3
TEC 288*	Optical Testing . . . . .	4
<b>Subtotal</b>		<b>56</b>
<b>Required Support Course</b>		
TEC 160*	Microcomputers and Programming Techniques . . . . .	3
<b>Total credits as displayed</b>		<b>71§</b>

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

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





# Theater

## Theater — Associate of Arts Degree for Transfer

Program Identification Code:  
**AOATHEATER**

*The theater program, leading to an Associate of Arts Degree for Transfer, prepares students for transfer to a four-year college, leading to a Bachelor of Arts in Theater Production, Theater Education, or Theater Theory. This program provides extensive experience and training in performing and all other areas of theater production.*

*Program Prerequisite: THE 149 - Introduction to Acting I with a grade B or better*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
English Composition	6
See General Education section, page 50	
Humanities and Fine Arts	†
Core courses fulfill this requirement	
Biological and Physical Sciences	8
See General Education section, page 50	
Mathematics	3
See General Education section, page 50	
Social and Behavioral Sciences	6-9
See General Education section, page 50	
Other Requirements	0-3
See General Education section, page 50	
Special Requirements	
The I, C, and G requirements should be fulfilled by courses 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>		
THE 103	Voice and Movement for the Actor I	1
THE 105*	Theater Appreciation	3
THE 111	Stagecraft	3
THE 113*	Stagecraft Crew	1
THE 115	Makeup	1
THE 125*	Theater Production	2
THE 140	History of Theater to the 18th Century	3
THE 141	History of Theater Since the 18th Century	3
THE 149	Introduction to Acting I	3
THE 151*	Introduction to Acting II	3
THE 220*	Stage Lighting	3
THE Electives	Any THE course	3
<b>Subtotal</b>		<b>29</b>

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

Choose one of the following options:		6
Complete one of the following options after consulting a theater department faculty advisor or counselor:		
<b>Option 1:</b>		
THE 118	Basic Theater Graphics	3
THE 223*	Scene Design	3
<b>Option 2:</b>		
THE 250*	Intermediate Acting I	3
THE 251*	Intermediate Acting II	3
<b>Total credits</b>		<b>61§</b>

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

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

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

# Translation Studies

- Translation Studies — Certificate for Direct Employment

## Certificate Entrance Requirements:

- WRT 102 or 108
- SPA 203 and 204 or a proficiency test
- Demonstrate fifty percent (50%) competency in the translation of a document without aid

## Certificate Exit Requirement

- Demonstrate seventy-five percent (75%) competency in the translation of a document without aid.

## Translation Studies — Certificate for Direct Employment

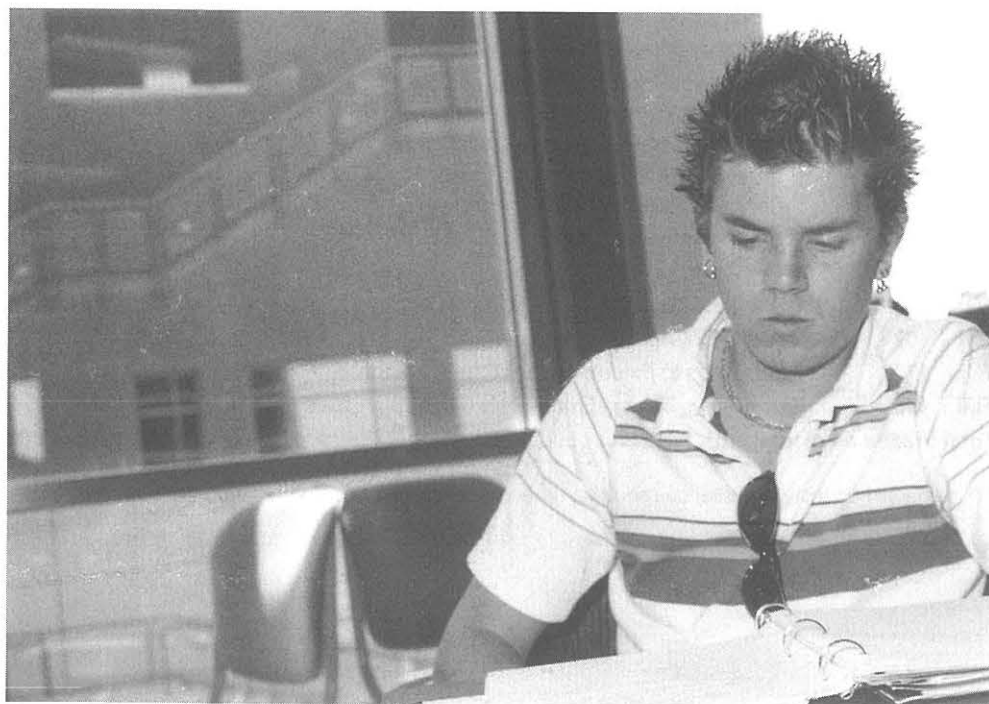
Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
TRS 101	Introduction to Translation . . . . .	4
TRS 102	Spanish for Translation . . . . .	4
TRS 103	English for Translation. . . . .	4
TRS 120IN*	Technology for Translation and Interpretation . . . . .	2
TRS 150*	Survey of Translation Specialty Areas . . . . .	4
TRS 160*	Translation in Specialty Areas. . . . .	4
TRS 290*	Practicum in Specialty Area Translation. . . . .	4
<b>Subtotal . . . . .</b>		<b>26</b>
<b>Required Support Courses</b>		
CSA 101	Computer Fundamentals . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>29</b>

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

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

Program Identification Code:  
**CRTTRANSLATE**

*The Translation Studies program is designed for individuals with proficiency in both Spanish and English who are interested in acquiring the skills to do accurate translation of written materials. Through a combination of theoretical classes and hands on laboratory style practices, students will gain experience in translating health care, legal, literary and commercial materials and will have the option of selecting one of those fields for an internship. Program courses and advising are available at the Downtown Campus.*



# Truck Driver Training

- Class A Vehicle Driver — Certificate for Direct Employment
- Professional Truck Driver — Certificate for Direct Employment
- Basic Truck Driver — Certificate for Direct Employment
- Straight Truck and Bus Driver — Certificate for Direct Employment
- Commercial Truck Driver — Certificate for Direct Employment

## Class A Vehicle Driver — Certificate for Direct Employment

Program identification code:  
**CRTTRUCKCLSA**

*Truck Driver Training (TDT) provides training that will enable trainees to learn and develop the knowledge and skills necessary to be successful in the trucking industry as a truck driver. It helps prepare the potential truck driver to pass the Commercial Driver License test.*

**Prerequisite(s):** Meet admission requirements as outlined by the Truck Driver Training Program.

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 and Commercial Driver's License Requirements . . .	5
TDT 119*	Basic Driving Maneuvers . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>8</b>

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

## Professional Truck Driver — Certificate for Direct Employment

Program identification code:  
**CRTTRUCKDRIV**

*Truck Driver Training (TDT) provides training which will enable trainees to learn and develop the knowledge and skills necessary to be successful in the trucking industry as a truck driver. It helps prepare the potential truck driver to pass the Commercial Driver License test.*

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
TDT 101*	Introduction to Trucking and First Aid . . . . .	3
TDT 102*	Driver Challenges and Air Brake System . . . . .	3
TDT 103*	Introduction to Hours of Service and Department of Transportation Regulations . . . . .	3
TDT 104*	Hazardous Materials and the Department of Transportation Regulations . . . . .	3
TDT 105*	Defensive Driving and Cargo Handling . . . . .	3
TDT 106*	Pre-Trip and Backing Skills . . . . .	1
TDT 107*	Basic Control . . . . .	1
TDT 108*	Proficiency Development . . . . .	1
TDT 109*	Extreme Driving Conditions . . . . .	1
TDT 110*	Introduction to Externship . . . . .	1
TDT 190*	Truck Driver Training Externship . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>23</b>

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

## Basic Truck Driver — Certificate for Direct Employment

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
TDT 112*	Preparation for the Commercial Driver's License Exam. . . . .	3
TDT 113*	Operation of a Tractor-Trailer . . . . .	3
TDT 114*	Inspect and Operate a Tractor-Trailer . . . . .	1
TDT 115*	Safe Driving Techniques. . . . .	1
<b>Total credits as displayed . . . . .</b>		<b>8</b>

Program identification code:  
**CRTTRUCK-B**

*Truck Driver Training (TDT) provides training which will enable trainees to learn and develop the knowledge and skills necessary to be successful in the trucking industry as a truck driver. It helps prepare the potential truck driver to pass the Commercial Driver License test.*

## Straight Truck and Bus Driver — 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>		
TDT 116*	Straight Truck and Bus Driver. . . . .	3
TDT 117*	Straight Truck and Bus Driver: Road and Range. . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>6</b>

Program identification code:  
**CRTTRUCKSBUS**

*Truck Driver Training (TDT) provides training which will enable trainees to learn and develop the knowledge and skills necessary to be successful in the trucking industry as a truck driver. It helps prepare the potential truck driver to pass the Commercial Driver License test.*

## Commercial Truck Driver — 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>		
TDT 112*	Preparation for the Commercial Driver's License Exam. . . . .	3
TDT 113*	Operation of a Tractor-Trailer . . . . .	3
TDT 114*	Inspect and Operate a Tractor-Trailer . . . . .	1
TDT 115*	Safe Driving Techniques. . . . .	1
TDT 110*	Introduction to Externship. . . . .	1
TDT 190*	Truck Driver Training Externship. . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>12</b>

Program identification code:  
**CRTTRUCKDCOM**

*Truck Driver Training (TDT) provides training which will enable trainees to learn and develop the knowledge and skills necessary to be successful in the trucking industry as a truck driver. It helps prepare the potential truck driver to pass the Commercial Driver License test.*

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



# Veterinary Technology

- Veterinary Technician Associate of Applied Science Degree

This program is accredited by the American Veterinary Medical Association (AVMA) and is academically challenging. It is based on the AVMA's Policies and Procedures for Accreditation.

Students seeking admission to the Veterinary Technology program must meet the following basic requirements:

## Program Prerequisites:

- High School diploma or GED.
- Admission to Pima Community College.
- Compass reading assessment test score at REA 112, or completion of REA 091 with a grade of C or better.
- Completion of MAT 122 with a grade of C or better.
- Completion of BIO 100IN with a grade of C or better.
- Completion of CSA 100 with a grade of C or better.

Students entering the Veterinary Technology program must also meet the following requirements:

- Must provide proof of personal medical insurance. Student health insurance is available through Pima Community College Student Services.
- Must provide proof of immunizations. (Currently: Pre-exposure Rabies Vaccinations Series and Tetanus Toxoid.)

In addition, it is essential that veterinary technology students be able to perform a variety of physical activities. At a minimum, students will be required to lift forty pound animals, restrain dogs, cats, caged birds, laboratory animals, reptiles, horses, cows, other domestic animals and stand for long periods of time as well as perform bending activities. Fine motor dexterity is required for assisting veterinarians during treatments and surgery. Excellent verbal and written communication skills are required for interacting with veterinarians, clients and fellow paraprofessionals. For the student's safety, good eyesight and hearing are essential. This is a very physically demanding occupational field. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

## General Requirements

- Total required credits: 72.
- VET course work: 47 credits.
- Other courses including General Education courses: 25.

## Minimal Grade Achievements

- Students must receive a C grade or better in all core courses to progress to the next semester or to graduate.

## Veterinary Technician — Associate of Applied Science Degree

Program Identification Code:  
**AASVETTECH**

*The Veterinary Technology program prepares the student for a career as a veterinary technician. The Associate of Applied Science Degree program provides specialty training which enables graduates to provide professional assistance to veterinarians, biological research workers, scientists, and animal control and humane organizations.*

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

Reading Requirement - Please refer to the Reading Requirement in the General Education section before enrolling in a general education course.	
Communication Requirement . . . . .	6
See General Education section, page 49	
Analysis and Critical Thinking Requirement . . . . .	†
BIO 100IN and MAT 122 fulfill this requirement.	
Humanities and Social Science Requirement . . . . .	6
See General Education section, page 49	
Computer and Information Literacy Requirement . . . . .	†
CSA 100 fulfills this requirement.	
<b>Subtotal</b> . . . . .	<b>12</b>

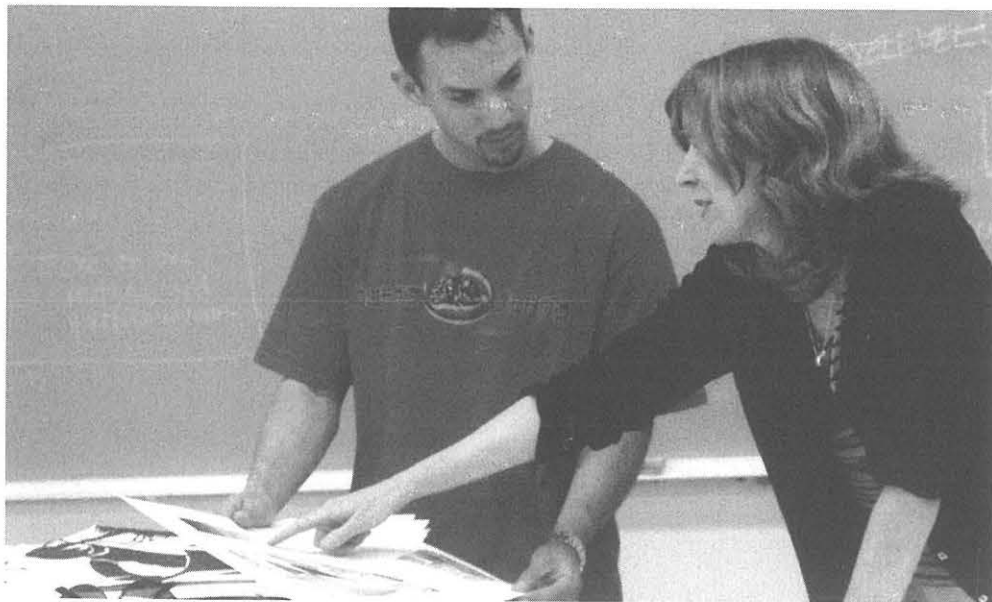
Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
VET 100*	Introduction to Veterinary Technology . . . . .	3
VET 110*	Veterinary Nursing Procedures I . . . . .	3
VET 111*	Veterinary Nursing Procedures II . . . . .	3
VET 120*	Clinical Pathology I . . . . .	3
VET 121*	Clinical Pathology II . . . . .	3
VET 130*	Animal Anatomy and Physiology I . . . . .	4
VET 131*	Animal Anatomy and Physiology II . . . . .	3
VET 150*	Pharmacology . . . . .	3
VET 191*	Veterinary Technician Clinical Experience I . . . . .	3
VET 200*	Anesthetic and Nursing . . . . .	3
VET 205*	Radiology and Imaging Techniques . . . . .	3
VET 210*	Veterinary Nursing Procedures III . . . . .	2
VET 211*	Veterinary Nursing Procedures IV . . . . .	2
VET 220*	Clinical Pathology III . . . . .	3
VET 225*	Veterinary Clinical Procedures . . . . .	3
VET 291*	Veterinary Technician Clinical Experience II . . . . .	3
<b>Subtotal . . . . .</b>		<b>47</b>
<b>Required Support Courses</b>		
BIO 100IN	Biology Concepts . . . . .	4
CHM 130/130LB/130IN	Fundamentals of Chemistry . . . . .	5
CSA 100	Computer Literacy . . . . .	1
MAT 122*	Intermediate Algebra . . . . .	3
<b>Subtotal . . . . .</b>		<b>13</b>
<b>Total credits as displayed . . . . .</b>		<b>72§</b>

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

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

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

*Program graduates are knowledgeable in the care and handling of animals, animal behavior, restraint, nutrition, medical and surgical nursing, anesthesiology, radiography and clinical laboratory procedures. The program consists of four semesters, and two five-week summer internships. Upon graduation, a student will be eligible to take the state and national boards to become a certified veterinary technician.*



# Welding

- Welding — Associate of Applied Science Degree for Direct Employment

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

Program Identification Code:

**AASWELDING**

*This degree provides skills and knowledge for careers in welding. Students are taught in classroom and lab areas like those found in industry. Welding students may find cooperative education to be a way of gaining work experience while attending classes. See a cooperative education teacher or coordinator for details.*



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

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

Communication Requirement . . . . . 6  
See General Education section, page 49

Analysis and Critical Thinking Requirement . . . . . 3  
GTM 105 fulfills 3 credits of this requirement  
See General Education section, page 49

Humanities and Social Science Requirement . . . . . 6  
See General Education section, page 49

Computer and Information Literacy Requirement . . . . . †  
CAD 101 fulfills this requirement  
See General Education section, page 49

**Subtotal . . . . . 15**

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

WLD 115*	Blueprint Reading/Estimating . . . . .	4
WLD 119*	Pattern Layout for Pipe Fabrication . . . . .	3
WLD 150	Oxyacetylene Welding . . . . .	4
WLD 160	Arc Welding . . . . .	4
WLD 250*	Pipe Welding. . . . .	4
WLD 261*	Gas Metal Arc Welding. . . . .	4
WLD 262*	Gas Tungsten Arc Welding. . . . .	4
<b>Subtotal . . . . .</b>		<b>27</b>

### Required Support Courses

CAD 101	Computer Aided Drafting Fundamentals . . . . .	4
GTM 105*	Applied Technical Mathematics . . . . .	3
Technical Electives . . . . .		11
Complete 11 credit hours from the following:		
OAP 111A, BCT, CAD, CSA, MGT, MAC, WLD		
<b>Subtotal . . . . .</b>		<b>18</b>

**Total credits as displayed . . . . . 60§**

\*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.

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

# Educational Courses





## Course Numbering System and Prerequisites

Courses numbered from 001-099 are those unique to the community college, are considered developmental in nature, are not anticipated to be transferable, and do not satisfy degree requirements.

Courses numbered 100-199 are considered to be on the freshman level. Courses numbered 200-299 are considered to be on the sophomore level.

### Sample course listing:

ACC	101	Financial Accounting	/3 cr. hrs.	/3 periods (3 lec.)
course prefix	course number	course title	semester hours of credit	hours of lecture and/or lab per week

A student registering for a course must meet the prerequisites or otherwise satisfy the instructor of his or her preparation to take the course. After notification, an instructor may withdraw a student who does not have the proper prerequisites for the class as stated in the catalog. Prerequisites may be waived by the instructor.

Consult the semester *Schedule of Classes* for specific offerings each semester.

## Topics Courses

Courses designated with the numbers **098, 198, 298** are courses created by a Pima Community College Faculty member to offer a specific subject not found in the regular courses of the college catalog.

Students should be aware that these courses are NOT designed for transfer to a university, nor does Pima Community College articulate them with any university to seek transfer status.

## Legend for Courses

IN	Integrated lecture/lab
LB	Lab
LC	Clinical Lab
LS	Skills Lab

## Listing of Course Prefixes

Accounting	ACC
Administration of Justice	AJS
American Indian Studies	AIS
Anthropology	ANT
Apache	APC
Arabic	ARB
Archaeology	ARC
Art	ART
Art for Personal Development	APD
Assembly Production	ASP
Astronomy	AST
Automotive Technology	AUT
Aviation Technology	AVM
Biology	BIO
Building and Construction Technology	BCT
Business	BUS
Chemistry	CHM
Childhood Development Associate	CDA
Chinese	CHI
Community Development Education	CDE
Computer Aided Design/Drafting	CAD

Computer Information Systems	CIS
Computer Software Applications	CSA
Cooperative Education	CED
Court Support Services	CSS
Credit Union	FIN
Crime Scene Management	CSM
Culinary Arts	CUL
Dance	DNC
Dental Assisting	DAE
Dental Hygiene	DHE
Dental Laboratory Technology	DLT
Design	DES
Digital Arts	DAR
Early Childhood Education	ECE
Economics	ECN
Education	EDU
Educational Technology Training	ETT
Electrical Utilities Technology	EUT
Emergency Medical Technology	EMT
Engineering	ENG
English as a Second Language	ESL
Environmental Technology	ENV
Equine Science	EQS
Experiential Education	EED
Fashion Design and Clothing	FDC
Finance	FIN
Fire Science	FSC
Fitness and Recreation	FAR
Fitness and Sport Sciences	FSS
Food Science and Nutrition	FSN
Foundations for Personal Change	FPC
French	FRE
General Technology Mathematics	GTM
Geography	GEO
Geology	GLG
German	GER
Greek	GRK
Health Care	HCA
Health Continuing Education	HCE
Health Education	HED
Hebrew	HEB
Histologic Technician Program	HTP
History	HIS
Honors Program	HON
Hospitality and Restaurant Management	HRM
Humanities	HUM
Human Resources Management	HRS
Interior Design (See Design)	DES
International Business Studies	IBS
Interpreter Training	ITP
Italian	ITA
Japanese	JPN
Journalism	JRN
Landscape Technician Program	LTP
Latin	LAT
Legal Assistant Paralegal	LAS
Library Skills	LIB

*continued next page*



**Listing of Course Prefixes (CONTINUED)**

Literature	LIT
Machine Tool Technology	MAC
Magnetic Resonance Imaging	MRI
Maintenance Technology	MNT
Management	MGT
Marketing	MKT
Mathematics	MAT
Music	MUS
Nursing	NRS
Nursing Assistant	NRA
Nursing Continuing Education	NCE
Office and Administrative Professions	OAP
Pharmacy Technology	PHT
Philosophy	PHI
Physics	PHY
Political Science	POS
Portuguese	POR
Postal Service Management	PSM
Process Technology	PRO
Production Inventory Management	PIM
Professional Flight Technology	PFT
Psychology	PSY
Public Administration	PAD
Public Safety Communications	PSC
Quality Control Technology	QCT
Radiologic Technology	RAD
Reading	REA
Real Estate	RLS
Records and Information Management	RIM
Religion	REL
Reserve Officers Training Corps - ROTC Air Force	MLA
Reserve Officers Training Corps - ROTC Army	MLS
Reserve Officers Training Corps - ROTC Navy	NSP
Respiratory Therapy	RTH
Restaurant, Culinary and Food Service Management	RCF
Russian	RUS
Safety Education	SED
Sign Language	SLG
Social Services	SSE
Sociology	SOC
Spanish	SPA
Speech Communication	SPE
Student Success	STU
Technology	TEC
Theater	THE
Tohono O'odham	THO
Tohono O'odham Culture	TOC
Translation Studies	TRS
Travel Industry Operations	TVL
Tribal Government	TRB
Truck Driver Training	TDT
Veterinary Technology	VET
Welding	WLD
Women's Studies	WST
Writing	WRT
Yaqui	YAQ

**ACCOUNTING**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**ACC 100 Practical Accounting Procedures /3 cr. hrs./3 periods (3 lec.)**  
Introduction to accounting systems for small businesses. Includes the basic accounting cycle, the use of special journals, procedures for controlling cash, and payroll accounting.

*Offered: Fall/Spring/Summer*

**ACC 101 Financial Accounting /3 cr. hrs./3 periods (3 lec.)**  
Introduction to accounting as a service activity, analytical discipline, and information system. Includes quantitative information to make decisions, identification of events that characterize economic activity, and the collection and communication of economic activity. Also includes recording accounting data, internal control of assets, measurement and reporting of liabilities and owners' equity.

*Offered: Fall/Spring/Summer*

**ACC 102 Managerial Accounting /3 cr. hrs./3 periods (3 lec.)**  
*Prerequisite(s): ACC 101, MAT 092.*

Accounting information for managers. Includes concepts for those who are inside an organization and who are responsible for planning, directing and controlling its operation. Also includes process costing, profit planning, overhead analysis, and capital budgeting decisions.

*Offered: Fall/Spring/Summer*

**ACC 150 Payroll Accounting /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): ACC 100 or 101.*

Current practices in payroll accounting and tax reporting. Includes laws affecting payroll and computation of gross earnings and withholding taxes. Also includes computerized payroll systems.

*Offered: Fall/Spring/Summer*

**ACC 160 Basic Tax Preparation /3 cr. hrs./3 periods (3 lec.)**

Basic skills in tax preparation. Includes preparation of federal Form 1040EZ, 1040A, and a simple 1040, selected schedules, worksheets, and other forms. Also includes preparation of Arizona tax forms.

*Information:* Requires supervised tax preparation work at a community site.  
*Information:* May be taken four times for a maximum of twelve credit hours.

*Offered: Spring*

**ACC 173 Introduction to Fund Accounting /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): ACC 101.*

Accounting practices in governmental units, such as city, county, and state agencies, and other not-for-profit organizations. Includes temporary fund balance accounts, budget entries, encumbrances, and tax receivables.

*Offered: Fall/Spring*

**ACC 190 Internship in Accounting /1.2-9 cr. hrs./2-41 periods (1 lec., 1-40 lab)**

*Prerequisite(s): Consent of instructor.*

Supervised internship in an accounting workplace. Includes experiences supervised by a professional in the field.

*Will not be offered this year*

**ACC 190A**

Internship in Accounting: Module A/1 cr. hr./1 period (1 lec.)

*Prerequisite(s): Consent of instructor.*

Survey of the accounting workplace. Includes up-to-date employment information, preparing for work, and job-related expectations.

*Will not be offered this year*

**ACC 190B Internship in Accounting: Module B /1.20-8 cr. hrs./1-40 periods (1-40 lab)**

*Prerequisite(s): Consent of instructor.*

Experience in the accounting workplace. Includes assignment in a professional office and supervision by a Pima faculty member and a workplace supervisor.

*Will not be offered this year*

**ACC 200 Accounting on the Microcomputer I /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): ACC 100 or 101.*

Fundamental accounting applications using commercial programs. Includes the use of modular accounting programs and electronic spreadsheets, emphasizing hands-on experience.

*Offered: Fall/Spring*

**ACC 201 Intermediate Accounting I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): ACC 102.*

Comprehensive coverage of financial accounting topics. Includes GAAP application, rationale, and clarification of the reasons for specific accounting principles. Also includes balance sheets, cash and receivables, inventories, and temporary and long term investments.

*Offered: Fall*

**ACC 202 Intermediate Accounting II /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* ACC 201.

Continuation of ACC 201. Includes continual integration of theory and practice, investments, long and short term liabilities, pension plans, stockholders equity, and analysis of financial statements.

*Offered:* Fall/Spring**ACC 203 Cost Accounting /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* ACC 102, MAT 122, REA 112.

Interpretation, use, and analysis of cost data for management planning, coordination and control. Includes the application of theories and concepts which underlie cost accounting and budgeting. Also includes job order costing, spoilage, standard costs, and capital budgeting.

*Offered:* Spring**ACC 204 Individual Tax Accounting /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s):* ACC 100 or 101.

Principles of accounting for taxes on personal income and business operations of self-employed individuals. Includes federal tax law, inclusions and exclusions from gross income, tax credits, property transactions, capital gains and losses, and tax preparation using a professional computer software package.

*Offered:* Spring**ACC 210 Accounting on the Microcomputer II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s):* ACC 200.

Continuation of ACC 200. Advanced accounting applications using commercial programs. Includes the use of modular accounting programs and electronic spreadsheets, emphasizing hands-on experience.

*Offered:* Fall/Spring**ACC 215 Quickbooks Computer Accounting /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s):* Consent of instructor.

Use of current Quickbooks software to set up and maintain accounting records for a small business. Includes accounts receivable, accounts payable, inventory, and payroll features.

*Offered:* Fall/Spring**ACC 220 Peachtree Computer Accounting /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s):* Consent of instructor.

Use of current Peachtree software to set up and maintain accounting records for a small business. Includes accounts receivable, accounts payable, inventory, and payroll features.

*Offered:* Fall/Spring**ACC 250 Certified Bookkeeper Review /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* ACC 100 or 101.

Preparation for the American Institute of Professional Bookkeepers (AIPB) Certified Bookkeeper examination. Includes review of accounting theory and practical bookkeeping skills. Also includes adjusting and correcting entries, bank reconciliations, payroll, depreciation, and inventory.

*Offered:* Spring**ADMINISTRATION OF JUSTICE**

For courses numbered 098, 198, 298 see "Topics" Courses on page 338

**AJS 101 Introduction to Administration of Justice Systems /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/Spring**AJS 115 Criminal Procedures /3 cr. hrs./3 periods (3 lec.)**

Overview of the system used in the U.S. to administer criminal cases. Includes implications for civil rights, the police process, the prosecuting attorney, the defense attorney, courts, grand jury, trial jury, coroner-medical examiner, judicial process, and the trial, and its aftermath.

*Offered:* Fall/Spring**AJS 123 Corrections as a Process /3 cr. hrs./3 periods (3 lec.)***Recommended:* AJS 101.

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.

*Offered:* Fall/Spring**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:* Will not be offered this year**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 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 the normal development needs of children and adolescents, the special needs of dependent, delinquent, challenged and special needs youth, roles of youth workers, and the need to focus on prevention through strengthening families and communities. Also includes a survey of local youth serving agencies.

*Information:* Same as SSE 160.*Offered:* Will not be offered this year**AJS 165 Introduction to Justice Data Systems /3 cr. hrs./3 periods (3 lec.)**

Introduction to data systems for all levels of law enforcement and correctional personnel and students in the criminal justice system. Includes introduction to computer hardware and operating systems, police information systems, types of software useful to the criminal justice system, computerized prisons and jails, and the future of computerization in criminal justice.

*Offered:* Will not be offered this year**AJS 170 Death Investigation /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* AJS 101 or consent of instructor.

Procedures and techniques of investigating sudden and unexpected, suspicious and violent deaths within the framework of a modern law enforcement and medical examiner system.

*Offered:* Fall/Spring**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**AJS 204 Criminal Investigation and Report Preparation /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* AJS 109 or concurrent enrollment or consent of instructor.

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.

*Offered:* Spring**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/Spring**AJS 212 Juvenile Justice Procedures /3 cr. hrs./3 periods (3 lec.)***Recommended:* AJS 101.

This 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.

*Offered:* Fall/Spring

**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.

*Offered: Fall/Spring*

**AJS 245 The Correctional Process /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* AJS 101 or concurrent enrollment or consent of instructor. Survey of correctional services and treatment. Includes philosophy, history, correctional models by type and function, institutional treatment, parole operations, community based treatment and special treatment programs.

*Offered: Will not be offered this year*

**AJS 246 Race and Ethnicity Issues in the Administration of Justice / 3 cr. hrs./3 periods (3 lec.)**

Focus on minorities in the criminal justice system. Includes multi-cultural community ties: challenges for law enforcement and corrections, cross-cultural communication, the Latino/ Hispanic American offender, the American Indian offender, the African American offender, peace officer image and cultural sensitivity, and police officer professionalism and peacekeeping strategies in a diverse society.

*Offered: Fall/Spring*

**AJS 256 Justice System Administration /3 cr. hrs./3 periods (3 lec.)**

Examination of crime, punishment, and correctional practices. Includes current issues affecting the economy, politics, social stability, prison and community corrections, and minorities.

*Offered: Will not be offered this year*

**AJS 290 Administration of Justice Field Experience /1-3 cr. hrs./ 1-3 periods (5-15 lab)**

*Prerequisite(s):* Consent of instructor.

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:* May be taken two times for a maximum of six credit hours.

*Offered: Fall/Spring*

**AMERICAN INDIAN STUDIES**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**AIS 089 Introduction to Native American Literature /3 cr. hrs./ 3 periods (3 lec.)**

Introduction to works of Native American authors. Includes literary forms, historical context, moral implications of the literature, and cultural significance.

*Will not be offered this year*

**AIS 101 Introduction to American Indian Studies I /3 cr. hrs./ 3 periods (3 lec.)**

Examination of the diversity of American Indian tribes. Includes successive colonization waves and conflict between Native Americans and colonizing nations. Also includes the development of Native American cultures, and policies toward Native Americans.

*Offered: Fall/Spring*

**AIS 102 Introduction to American Indian Studies II /3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s):* AIS 101.

Continuation of AIS 101. Includes diversity of American Indian tribes, successive colonization waves, and conflict between Native Americans and colonizing nations. Also includes contemporary issues and their impact on American Indians in transition and an introduction to Native American theories and philosophies.

*Will not be offered this year*

**ANTHROPOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ANT 101 Human Origins and Prehistory /3 cr. hrs./3 periods (3 lec.)**

Survey of physical anthropology and archaeology. Includes the emergence of the human species from its origins based on our understanding of the archaeological and fossil record.

*Information:* Same as ARC 101.

*Offered: Fall*

**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, and key figures, and 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-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.

*Information:* Same as ENV 105.

*Offered: Fall/Spring*

**ANT 105LB Humanity and the Environment Discovery Laboratory / 1 cr. hr./3 periods (3 lab)**

*Prerequisite(s):* Concurrent or prior enrollment in ANT/ENV 105.

Laboratory exercises 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.

*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 110 Buried Cities and Lost Tribes /3 cr. hrs./3 periods (3 lec.)**

Exploration of the human past. Includes studying important archaeological finds from various cultures around the world.

*Information:* Same as ARC 110.

*Offered: Fall/Spring*

**ANT 112 Exploring Non-Western Cultures /3 cr. hrs./3 periods (3 lec.)**

Anthropological introduction to non-Western cultures. Includes theory, method, and history of anthropology, pre-colonial non-Western cultures, and post-colonial non-Western cultures in a global context.

*Offered: Fall/Spring/Summer*

**ANT 126 Peoples in Transition /3 cr. hrs./3 periods (3 lec.)**

Anthropological approaches to social change. Includes a comparison of cultures in situations of contact and change, and of methods and theories for studying culture change.

*Will not be offered this year*

**ANT 127 History and Culture of the Mexican-American in the Southwest /3 cr. hrs./3 periods (3 lec.)**

Historical survey of the Mexican-American people from their indigenous origins in Meso-America and the Gran Chichimeca to the present in the United States Southwest and the border region. Includes the totality of Chicano life in the United States since the Treaty of Guadalupe Hidalgo and the challenges into the 21st century. Also includes settlement patterns, society and political economy of the Spanish Empire and Mexico in El Norte.

*Information:* Same as HIS 127.

*Offered: Fall/Spring*

**ANT 129 Culture and Personality /3 cr. hrs./3 periods (3 lec.)**

Survey of topics in psychological anthropology. Includes history of development of psychological anthropology, affective and cognitive approaches in psychological anthropology, key figures, influences, methods and models, limitations and criticisms of culture and personality studies, and examine sub-topics in culture and personality studies. Also includes a selection of ethnographic material from the United States and abroad and consideration of the influences of gender, ethnicity, class and other social variables on personality issues within cultures.

*Offered: Will not be offered this year*

**ANT 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.

*Information:* Same as ART 135 and HIS 135.

*Offered: Spring*

**ANT 136 Masks /3 cr. hrs./3 periods (3 lec.)**

Anthropological and art historical study of masks and masquerade as an element of human culture. Includes masks and society, masks and ritual, masks and storytelling, and masks and gender. Also includes conceptual examination of global examples, and practical projects in mask construction.

*Information:* Same as ART 136.

*Offered: 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 Indian origins, adaptations to cultural, political and economic changes, and current status. Also includes emphasis on federal Indian policies and leadership.  
*Information:* Same as HIS 148.

*Offered:* Spring

**ANT 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.

*Information:* Same as HIS 150.

*Will not be offered this year*

**ANT 200 Biological Anthropology /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* ANT/ARC 101 or consent of instructor.

Interaction of human biology and culture. Includes various peoples and their environment, case studies of microevolution and macroevolution, human variability and demography. Also includes population biology and genetics.

*Offered:* Fall/Spring

**ANT 202 Sex, 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

**ANT 203 Ethnic Groups and Culture /3 cr. hrs./3 periods (3 lec.)**

Anthropological survey of ethnicity and culture. Includes introduction to ethnicity studies, ethnic group formation and maintenance, larger social and cultural context, ethnicity and other social variables, cultural context, change and globalization, and selected case studies.

*Offered:* Will not be offered this year

**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 living people of the Southwest, dating methods, the Archaic Cultures, and agricultural strategies.

*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/Spring

**ANT 207 Southwestern Prehistory Lab /1 cr. hr./3 periods (3 lab)**

*Prerequisite(s):* ANT/ARC 205 or concurrent enrollment in ANT/ARC 205 or consent of instructor.

Laboratory and field activities to provide interpretive context for prehistoric cultures of the American Southwest. Includes categories of prehistoric archaeological sites, and historical period sites.

*Information:* Field trips are taken to selected sites.

*Information:* Same as ARC 207.

*Offered:* Will not be offered this year

**ANT 210 Cultural Anthropology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* ANT 102.

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.

*Offered:* Fall/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/Spring

**ANT 225 Archaeology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* ANT/ARC 101 or consent of instructor.

Survey of the concepts and methods which archaeologists use to reconstruct human prehistory. Includes a history of archaeology, method and techniques of archaeological excavation, surveying and mapping, dating, sampling and statis-

tical methods, archaeological analysis, and a synthesis of archaeological data.

*Information:* Same as ARC 225.

*Offered:* Fall

**ANT 250 Archaeology Laboratory /4 cr. hrs./6 periods (3 lec., 3 lab)**

**Prerequisite(s):** ANT/ARC 101, ARC 180, or consent of instructor.

Laboratory experience in the curating, processing and analysis of prehistoric and historic artifacts recovered from archaeological sites. Includes human osteology, sex and age determination techniques, zooarchaeology, mammal and avian bone identification, and prehistoric ceramics.

*Information:* Same as ARC 250.

*Offered:* Will not be offered this year

**ANT 265 Mapping Concepts /1 cr. hr./1 period (1 lec.)**

Introduction to the practical use of maps. Includes fundamental cartographic concepts, terminology and exercises.

*Information:* Same as ARC 265 and GEO 265.

*Offered:* Will not be offered this year

**ANT 267 Introduction to Geographic Information Systems /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* ANT/ARC/GEO 265 or concurrent enrollment.

*Recommended:* Basic computer skills.

Introduction to the technology of geographic information systems. Includes the evolution of technology, system components, database concepts, applications, and implementation.

*Information:* Same as ARC 267 and GEO 267.

*Offered:* Will not be offered this year

**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 Center.

*Information:* Same as ARC 275.

*Will not be offered this year*

**ANT 276 Archaeological Exploration I /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ARC 180 or concurrent enrollment.

*Recommended:* Consult instructor for alternative prerequisite(s).

Techniques and methods for recognizing, locating and recording archaeological sites. Includes fieldwork in southern Arizona. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ARC 276.

*Will not be offered this year*

**ANT 277 Archaeological Excavation II /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ANT/ARC 205, ANT/ARC 265 or concurrent enrollment, ANT/ARC 275, GLG 101.

*Recommended:* Consult instructor for alternative prerequisite(s).

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 Center.

*Information:* Same as ARC 277.

*Will not be offered this year*

**ANT 278 Archaeological Exploration II /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ANT/ARC 205, ANT/ARC 265 or concurrent enrollment, ANT/ARC 276, GLG 101.

*Recommended:* Consult instructor for alternative prerequisite(s).

Continuation of ANT 276. Includes archival investigation, advanced field techniques, crew supervision, and selected field projects. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ARC 278.

*Will not be offered this year*

**ANT 281 Global Positioning Systems I /2 cr. hrs./2 periods (2 lec.)**

Introduction of the use of GPS (Global Positioning Systems) receivers in a field setting for non-technical applications. Includes system configuration, data collection, and data transfer. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ARC 281.

*Will not be offered this year*

**ANT 282 Managing Archaeological Data /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* ANT/ARC 275 or ANT/ARC 276, CSA 101, and consent of instructor.

Organization and management of data associated with archaeological field work and collections. Includes collection strategies and techniques.



application software, and data contexts.

*Information:* Same as ARC 282.

*Will not be offered this year*

**ANT 283 ArchaeoCAD /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* CSA 101, and ANT/ARC 265 or concurrent enrollment.

Computer aided drafting software emphasizing techniques and hardware appropriate for archaeological applications. Includes hardware configuration, approaches to CAD, and data collection techniques.

*Information:* Same as ARC 283.

*Will not be offered this year*

**ANT 284 Archaeocartography/Desktop Mapping /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* ARC 265 or concurrent enrollment, CSA 101.

Cartographic techniques and hardware for computer generation of maps. Includes software for cartography.

*Information:* Same as ARC 284 and GEO 284.

*Will not be offered this year*

**ANT 285 Field Mapping I /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ANT/ARC 265 or concurrent enrollment, ANT/ARC 275.

*Recommended:* Consult instructor for alternative prerequisite(s).

Traditional surveying instruments and associated software for field mapping. Includes mapping strategies, instrument operation, field data techniques, and producing maps. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ARC 285.

*Will not be offered this year*

**ANT 286 Field Mapping II /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ANT/ARC 285.

*Recommended:* Consult instructor for alternative prerequisite(s).

Continuation of ANT/ARC 285. Includes electronic surveying instruments, computerized data collection systems, and associated software for mapping archaeological sites. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ARC 286.

*Will not be offered this year*

**ANT 289 Global Positioning Systems II /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* ANT/ARC 265 or concurrent enrollment, ANT/ARC 281, CSA 101.

*Recommended:* Consult instructor for alternative prerequisite(s).

Continuation of ANT 281. Includes advanced applications of global positioning systems and related equipment. Also includes software applications and data manipulation. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ARC 289.

*Will not be offered this year*

**ANT 295 Field Projects /3 cr. hrs./9 periods (9 lab)**

*Prerequisite(s):* Consent of instructor.

Participation in a field project in one of the subfields of anthropology.

*Information:* Same as ARC 295.

*Will not be offered this year*

**ANT 296 Independent Studies in ANT/ARC /5-3 cr. hrs./5-9 periods (5-9 lec.)**

*Prerequisite(s):* Consent of instructor.

Students independently continue their studies in anthropology under the supervision of a faculty member.

*Information:* May be taken three times for a maximum of nine credit hours.

*Information:* Same as ARC 296.

*Offered:* Fall/Spring/Summer

## APACHE LANGUAGE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**APC 101 Apache Language I /4 cr. hrs./4 periods (4 lec.)**

An introduction to the Apache language and culture. Includes reading, writing and conversational skills, speech patterns, grammar and usage and listening comprehension skills. Also includes vocabulary development and an overview of the Apache culture.

*Will not be offered this year*

**APC 102 Apache Language II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* APC 101.

Continuation of Apache Language I. Includes increased proficiency and development of the skills in pronunciation, speaking and conversing, understanding, reading, and writing the language. Also includes vocabulary development and an overview of the Apache traditional culture.

*Will not be offered this year*

## ARABIC

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ARB 101 Elementary Modern Standard Arabic I /5 cr. hrs./5 periods (5 lec.)**

Introduction to modern standard Arabic language. Includes an overview of the modern standard Arabic language, speaking, listening, reading, writing, grammar, interpersonal transactions and cultural contexts.

*Offered:* Fall

## ARCHAEOLOGY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ARC 060 Artifacts and Sites of Tucson /5 cr. hr./5 period (.5 lec.)**

Overview of the artifacts and archaeological sites of the Tucson Basin. Includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Field trip is part of the course.

*Offered:* Spring

**ARC 061 Tucson Prehistory /5 cr. hr./5 period (.5 lec.)**

Overview of the prehistoric cultures of the Tucson Basin. Includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Offered:* Spring

**ARC 062 Stone Tool Making /5 cr. hr./5 period (.5 lec.)**

Introduction to the production of chipped stone tools. Includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Offered:* Spring

**ARC 063 Prehistoric Pottery Making /5 cr. hr./5 period (.5 lec.)**

Introduction to the making of pottery employing techniques used by the prehistoric inhabitants of the Tucson Basin. Includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Offered:* 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 Center.

*Offered:* Fall

**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 Center.

*Will not be offered this year*

**ARC 101 Human Origins and Prehistory /3 cr. hrs./3 periods (3 lec.)**

Survey of physical anthropology and archaeology. Includes the emergence of the human species from its origins based on our understanding of the archaeological and fossil record.

*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 studying important archaeological finds from various cultures around the world.

*Information:* Same as ANT 110.

*Offered:* Fall/Spring

**ARC 180 Artifact Identification /2 cr. hrs./2 periods (2 lec.)**

Introduction to the recognition, identification and classification of the various types of artifacts recovered from local archaeological sites. Includes an overview of prehistoric ceramics in the Tucson Basin, chipped stone technology, ground stone tool identification, and miscellaneous artifacts. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*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 living people of the Southwest, dating methods, the Archaic Cultures, and agricultural strategies.

*Information:* Same as ANT 205.

*Offered:* Fall/Spring

**ARC 207 Southwestern Prehistory Lab /1 cr. hr./3 periods (3 lab)**

*Prerequisite(s):* ANT/ARC 205 or concurrent enrollment in ANT/ARC 205 or consent of instructor.

Laboratory and field activities to provide interpretive context for prehistoric cultures of the American Southwest. Includes categories of prehistoric archaeological sites, and historical period sites.

*Information:* Field trips are taken to selected sites.

*Information:* Same as ANT 207.

*Will not be offered this year*

**ARC 225 Principles of Archaeology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* ANT/ARC 101 or consent of instructor.

Survey of the concepts and methods which archaeologists use to reconstruct human prehistory. Includes a history of archaeology, method and techniques of archaeological excavation, surveying and mapping, dating, sampling and statistical methods, archaeological analysis, and a synthesis of archaeological data.

*Information:* Same as ANT 225.

*Offered:* Fall

**ARC 250 Archaeology Laboratory /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* ANT/ARC 101, ARC 180, or consent of instructor.

Laboratory experience in the curating, processing and analysis of prehistoric and historic artifacts recovered from archaeological sites. Includes human osteology, sex and age determination techniques, zooarchaeology, lithic bone identification, and prehistoric ceramics.

*Information:* Same as ANT 250.

*Will not be offered this year*

**ARC 265 Mapping Concepts /1 cr. hr./1 period (1 lec.)**

Introduction to the practical use of maps. Includes fundamental cartographic concepts, terminology and exercises.

*Information:* Same as ANT 265 and GEO 265.

*Offered:* Fall

**ARC 267 Introduction to Geographic Information Systems /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* ANT/ARC/GEO 265 or concurrent enrollment.

*Recommended:* Basic computer skills.

Introduction to the technology of geographic information systems. Includes the evolution of technology, system components, database concepts, applications, and implementation.

*Information:* Same as ANT 267 and GEO 267.

*Will not be offered this year*

**ARC 270 Archaeological Materials /1 cr. hr./1 period (1 lec.)**

*Co-requisite(s):* Concurrent enrollment in ARC/ANT 275 or 276.

The handling, processing and curation of the materials acquired during field work as well as the information derived from them. Includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**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 Archaeology Center.

*Information:* Same as ANT 275.

*Offered:* Fall

**ARC 276 Archaeological Exploration I /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ARC 180 or concurrent enrollment.

*Recommended:* Consult instructor for alternative prerequisite(s).

Techniques and methods for recognizing, locating and recording archaeological sites. Includes fieldwork in southern Arizona. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ANT 276.

*Offered:* Spring

**ARC 277 Archaeological Excavation II /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ARC/ANT 205, ARC/ANT 265 or concurrent enrollment, ARC/ANT 275, GLG 101.

*Recommended:* Consult instructor for alternative prerequisite(s).

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 Center.

*Information:* Same as ANT 277.

*Will not be offered this year*

**ARC 278 Archaeological Exploration II /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ARC/ANT 205, ARC/ANT 265 or concurrent enrollment, ARC/ANT 276, GLG 101.

*Recommended:* Consult instructor for alternative prerequisite(s).

Continuation of ARC 276. Includes archival investigation, advanced field techniques, crew supervision, and selected field projects. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ANT 278.

*Will not be offered this year*

**ARC 281 Global Positioning Systems I /2 cr. hrs./2 periods (2 lec.)**

Introduction to the use of GPS (Global Positioning Systems) receivers in a field setting for non-technical applications. Includes system configuration, data collection, and data transfer. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ANT 281.

*Offered:* Fall/Spring

**ARC 282 Managing Archaeological Data /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* ANT/ARC 275 or ANT/ARC 276, CSA 101, and consent of instructor.

Organization and management of data associated with archaeological field work and collections. Includes collection strategies and techniques, application software, and data contexts.

*Information:* Same as ANT 282.

*Will not be offered this year*

**ARC 283 ArchaeoCAD /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* CSA 101, and ARC/ANT 265 or concurrent enrollment.

Computer aided drafting software emphasizing techniques and hardware appropriate for archaeological applications. Includes hardware configuration, approaches to CAD, and data collection techniques.

*Information:* Same as ANT 283.

*Will not be offered this year*

**ARC 284 Archaeocartography/Desktop Mapping /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* ARC 265 or concurrent enrollment, CSA 101.

Cartographic techniques and hardware for computer generation of maps. Includes software for cartography.

*Information:* Same as ANT 284 and GEO 284.

*Will not be offered this year*

**ARC 285 Field Mapping I /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ARC/ANT 265 or concurrent enrollment, ARC/ANT 275.

*Recommended:* Consult instructor for alternative prerequisite(s).

Traditional surveying instruments and associated software for field mapping. Includes mapping strategies, instrument operation, field data techniques, and producing maps. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ANT 285.

*Offered:* Fall

**ARC 286 Field Mapping II /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* ARC/ANT 285.

*Recommended:* Consult instructor for alternative prerequisite(s).

Continuation of ANT/ARC 285. Includes electronic surveying instruments, computerized data collection systems, and associated software for mapping archaeological sites. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ANT 286.

*Offered:* Spring

**ARC 289 Global Positioning Systems II /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* ARC/ANT 265 or concurrent enrollment, ARC/ANT 281, CSA 101.

*Recommended:* Consult instructor for alternative prerequisite(s).

Continuation of ARC 281. Includes advanced applications of global positioning systems and related equipment, software applications and data manipulation. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.

*Information:* Same as ANT 289.

*Will not be offered this year*

**ARC 295 Field Projects /3 cr. hrs./9 periods (9 lab)**

*Prerequisite(s):* Consent of instructor.

Participation in a field project in one of the subfields of anthropology.

*Information:* Same as ANT 295.

*Will not be offered this year*

**ARC 296 Independent Studies in ARC/ANT /5-3 cr. hrs./5-9 periods (5-9 lab)**

*Prerequisite(s):* Consent of instructor.

Students independently continue their studies in anthropology under the supervision of a faculty member.

*Information:* May be taken three times for a maximum of nine credit hours.

*Information:* Same as ANT 296.

*Offered:* Fall/Spring

## ART FOR PERSONAL DEVELOPMENT

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### APD 050 Photography /2 cr. hrs./4 periods (1 lec., 3 lab)

Introduction to black and white photography for personal use. Includes history of photography, introduction to the camera, principles of film, and darkroom orientation.

*Offered: Fall/Spring*

### APD 051 Mariachi Music I /2 cr. hrs./4 periods (1 lec., 3 lab)

Practical application of mariachi music skills. Includes an introduction to mariachi music, reading music, playing and transposing songs and melodies, and learning the basics of ensemble singing. Also includes the care and maintenance of various mariachi musical instruments.

*Offered: Fall/Spring*

### APD 056 Mexican Mural Painting /2 cr. hrs./4 periods (1 lec., 3 lab)

Introduction to and application of the principles of Mexican mural painting. Includes historical events that influenced the birth of mural art, prominent painters in Europe and Mexico that influenced mural art, events that influenced Chicano mural art in the United States, and applying the principle median of mural art.

*Offered: Fall/Spring*

### APD 062 Acrylic and Oil Painting I /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: Fall/Spring*

### APD 063 Acrylic and Oil Painting II /2 cr. hrs./4 periods (1 lec., 3 lab)

*Recommendation: APD 062.*

Intermediate painting for further development of the techniques. Includes review of painting of painting preparation, intermediate composing and building paintings, and intermediate development of a personal vision.

*Offered: Fall/Spring*

### APD 064 Acrylic and Oil Painting III /2 cr. hrs./4 periods (1 lec., 3 lab)

*Recommendation: APD 063.*

Advanced painting for techniques, color knowledge, and content sources. Includes review preparation, advanced level of composing, and building paintings, and advanced development of a personal voice and vision.

*Offered: Fall/Spring*

### APD 065 Watercolor I /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: Fall/Spring*

### APD 066 Watercolor II /2 cr. hrs./4 periods (1 lec., 3 lab)

*Prerequisite(s): APD 065.*

Progressive watercolor methods. Includes use of photographs and drawings, watercolor styles, watercolor applications, and beginning experimentation.

*Offered: Fall/Spring*

### APD 067 Watercolor III /2 cr. hrs./4 periods (1 lec., 3 lab)

*Prerequisite(s): APD 065.*

Additional progressive watercolor methods. Includes intermediate watercolor applications, and intermediate experimentation.

*Offered: Fall/Spring*

### APD 068 Watercolor IV /2 cr. hrs./4 periods (1 lec., 3 lab)

*Prerequisite(s): APD 065.*

Continuation of progressive watercolor methods. Includes advanced watercolor applications and advanced experimentation.

*Offered: Fall/Spring*

### APD 072 Mariachi Music II /2 cr. hrs./4 periods (1 lec., 3 lab)

*Prerequisite(s): APD 051.*

Continuation of APD 051. Includes history of mariachi groups in Mexico, further review and skill refinement of APD 051, mariachi clothing, the guitarron and vihuela, special techniques of mariachi music, and rehearsal of techniques and skills developed.

*Offered: Fall/Spring*

### APD 073 Mariachi Music III /2 cr. hrs./4 periods (1 lec., 3 lab)

*Prerequisite(s): APD 072.*

Continuation of APD 072. Includes practicing and performing as a group and as solos, styles inherent to mariachi music, the role of each musical instrument to produce a total sound, and stage performance techniques for a mariachi performing group.

*Will not be offered this year*

### APD 078 Mariachi Music V /2 cr. hrs./4 periods (1 lec., 3 lab)

Includes music theory, rhythms and patterns, rhythmic applications, advanced tonality application techniques, performance, gesturing techniques, execution of songs, microphone techniques, and duets, trios, and ensemble singing.

*Will not be offered this year*

## ART

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### ART 100 Basic Design /3 cr. hrs./5 periods (2 lec., 3 lab)

Introduction to the elements and principles of visual design. Includes line, shape, space, value, texture, volume and color. Also includes skill development in organizing these elements and applying the visual principles of harmony, variety, balance, tension, rhythm, proportion, repetition, and contrast.

*Offered: Fall/Spring/Summer*

### ART 105 Art Appreciation /3 cr. hrs./3 periods (3 lec.)

Introduction to the visual arts. Includes the exploration of aesthetic theory, art history, art criticism, and studio production. Also includes art theory, slide and digital exploration of major periods in World Art, studio activities, and visits to local art museums.

*Offered: Fall/Spring/Summer*

### ART 110 Drawing I /3 cr. hrs./5 periods (2 lec., 3 lab)

*Prerequisite(s): ART 100.*

Introduction to drawing. Includes use of graphic media: pencil, charcoal, and ink on paper. Also includes elements of design as applied to representational drawing.

*Offered: Fall/Spring*

### ART 115 Color and Composition /3 cr. hrs./5 periods (2 lec., 3 lab)

*Prerequisite(s): ART 100.*

Introduction to recognizing color principles and relationships and analyzing and duplicating colors. Includes creating the illusion of dimension, transparency, and luminosity in original design. Also includes the use of a variety of materials.

*Offered: Fall/Spring/Summer*

### ART 120 Sculptural Design /3 cr. hrs./5 periods (2 lec., 3 lab)

*Recommended: ART 100 is strongly recommended for non-majors and recommended for majors.*

Extension of design into three-dimensional concepts and media. Focuses on the study of volume and spatial relationships through modeling, casting, carving and construction. Includes elements of color, texture, and line as applied to three-dimensional design.

*Offered: Fall/Spring/Summer*

### ART 123 Lost Wax Sculpture Casting /2 cr. hrs./4 periods (1 lec., 3 lab)

*Prerequisite(s): ART 100.*

*Recommended: Consult instructor for alternative prerequisite(s).*

Introduction to metal casting of sculpture with emphasis on the ceramic shell method of mold making. Includes wax working, speuing, mold making, casting in bronze and aluminum, and finishing metal castings.

*Offered: Fall/Spring*

### ART 128 Digital Photography /4 cr. hrs./6 periods (2 lec., 4 lab)

Introduction to digital photography emphasizing the technical and aesthetic issues and how these qualities inform image content. Includes history of still photography, applications of digital cameras, aspects of the digital medium, camera and computer equipment requirements, digital still camera, memory and file formats in digital still cameras, digital still camera lenses, proper exposure, light, color, and temperature, using depth of field, using shutter speed effects, proper use of digital photography, lighting for digital stills, elements of composition, how composition informs content, photographic rendering, photographic reality, outputting and publishing, portfolio preparation, and career options in digital photography.

*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. Professional cameras, computers and software, lighting equipment, and a studio will be provided. There may be additional supply costs in addition to course fees.

*Offered: Fall/Spring*



**ART 130 Art and Culture: Prehistoric Through Gothic /3 cr. hrs./ 3 periods (3 lec.)**

Slide and lecture discussions of western civilization's major contributions to the development of sculpture, painting, and architecture. Includes a survey from prehistoric through Gothic art.

*Offered: Fall/Spring/Summer*

**ART 131 Art and Culture: Late Gothic Through Modern Periods /3 cr. hrs./3 periods (3 lec.)**

Continuation of ART 130. Includes western civilization's major contributions to the development of sculpture, painting, and architecture from the renaissance into the twentieth century.

*Offered: Fall/Spring*

**ART 132 Modern Art Survey /3 cr. hrs./3 periods (3 lec.)**

Survey of modern art trends in painting, sculpture, and architecture from the middle 19th century to recent times. Includes slide and lecture discussions which will emphasize both formal and contextual aspects of art works.

*Offered: Spring*

**ART 133 Art in America /3 cr. hrs./3 periods (3 lec.)**

Introductory survey of American art from the colonial period to the present. Includes emphasis on American painting, sculpture, decorative arts, and architecture as well as European influences. Also includes folk art, crafts, art of underrepresented Americans, and issues surrounding cultural production.

*Offered: Will not be offered this year*

**ART 134 Arts of Diverse Cultures /3 cr. hrs./3 periods (3 lec.)**

Introduction to the artistic traditions of Asia, Africa, Oceania, Native North America, Mesoamerica, and South America. Includes social/cultural contexts of art works and issues of Western interpretation of non-Western art.

*Offered: Summer*

**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.

*Information:* Same as ANT 135 and HIS 135.

*Offered: Spring*

**ART 136 Masks /3 cr. hrs./3 periods (3 lec.)**

Anthropological and art historical study of masks and masquerade as an element of human culture. Includes masks and society, masks and ritual, masks and storytelling, and masks and gender. Also includes conceptual examination of global examples, and practical projects in mask construction.

*Information:* Same as ANT 136.

*Offered: Fall/Spring*

**ART 140 Photography I /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100.*

Introduction to black and white photography as an art form with an emphasis on fundamental technique of the camera and darkroom. Includes film development, printing, beginning portfolio development and historical content.

*Offered: Fall/Spring/Summer*

**ART 141 Photography II /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 140 and consent of instructor.*

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.

*Offered: Fall/Spring*

**ART 143 Commercial Photography I /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 141.*

Introduction to principles and practices of photography as a business. Includes materials, equipment, facilities, and technologies. Also includes both traditional and digital methods.

*Offered: Spring*

**ART 147 Alternative Processes in Photography I /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100.*

*Recommended: Consult instructor for alternative prerequisites.*

Designed for the advanced photographer/digital image maker interested in expanding knowledge of alternative photographic processes. Includes bridging 19th century with 21st century processes via digital technologies and mid-1800's printing methods.

*Offered: Fall/Spring*

**ART 160 Ceramics I /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100 or concurrent enrollment.*

Introduction to ceramics. Includes wheel and hand-built forms and basic glazing techniques.

*Offered: Fall/Spring/Summer*

**ART 164 Raku Ceramics Workshop /2 cr. hrs./4 periods (1 lec., 3 lab)**

*Prerequisite(s): ART 160 or equivalent ceramic experience.*

Introduction to Raku, a low temperature, quick-firing ceramics method developed in 16th century Japan. Includes traditional and contemporary approaches involved in the forming, glazing, and firing of pots.

*Will not be offered this year*

**ART 170 Metalwork I: Jewelry /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100.*

Exploration of the basic techniques and design approaches used in the fabrication of jewelry and other metalwork. Includes construction, casting, forming, surface embellishment, and other techniques.

*Offered: Fall/Spring/Summer*

**ART 175 Ferrous Metalwork: Blacksmithing, Tool Making and Knife Making /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100 or consent of instructor.*

Introduction to design, layout, materials, fuels, forge making and practices. Includes hot-working ferrous metals, heat treating and finishing processes as well as the design and techniques involved in tool construction. Also includes the essential processes used in knife making.

*Offered: Fall/Spring*

**ART 175A Ferrous Metalwork: General Blacksmithing /1 cr. hr./ 1.7 periods (.7 lec., 1 lab)**

*Prerequisite(s): ART 100 or consent of instructor.*

Introduction to design, layout, materials, fuels, forge making and practices. Includes hot-working ferrous metals, heat treating and finishing processes.

*Information:* ART 175A, 175B, and 175C together constitute ART 175.

*Will not be offered this year*

**ART 175B Ferrous Metalwork: Tool Making /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

*Prerequisite(s): ART 175A or consent of instructor.*

Continuation of ART 175A. Includes emphasis on the design and techniques involved in tool construction.

*Information:* ART 175A, 175B, and 175C together constitute ART 175.

*Offered: Will not be offered this year*

**ART 175C Ferrous Metalwork: Knife Making /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

*Prerequisite(s): ART 100 or consent of instructor.*

*Recommended: ART 175A, 175B.*

Introduction to essential processes used in knife making. Includes design, layout, materials, blade reduction, forging, heat treating, and finishing.

*Information:* ART 175A, 175B, and 175C together constitute ART 175.

*Offered: Will not be offered this year*

**ART 180 Weaving I: Four-Harness Loom /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100.*

Weaving on a four-harness loom. Includes projects involving color, texture, pattern, and the use of tabby, twill, tubular, textural, and tapestry weaves in the creation of clothing and fiber art.

*Offered: Fall*

**ART 181 Mixed Media Fibers /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100.*

Introduction to fiber as an art medium. Includes fiber processes such as basketry, crochet, macramé, plaiting, surface design, and mixed media.

*Offered: Spring*

**ART 201 Survey of Painting, Materials, and Techniques /3 cr. hrs./ 5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 100.*

Technical investigation of prominent painting methods from ancient Greece to the present. Includes encaustic technique, tempera technique, glaze technique, alla prima technique, and watercolor technique. Also includes preparation of grounds, media, and underpainting.

*Offered: Spring*

**ART 210 Drawing II /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ART 110.*

Continuation of ART 110. Includes further development of imaginative and technical skills in the use of space and graphic design. Also includes the development of a portfolio of finished drawings.

*Offered: Fall/Spring*



**ART 212 Printmaking I /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 100.*

Introduction to basic aesthetics and techniques of printmaking. Includes intaglio etching, relief printing, and monotypes.

*Offered: Fall/Spring***ART 213 Life Drawing /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 100.**Recommended: ART 110.*

Drawing the human figure using the two-dimension concept as a graphic vehicle of expression. Includes opportunities to work in various media.

*Offered: Fall/Spring/Summer***ART 214 Printmaking II /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 212.*

Continuation of ART 212. Includes advanced problems in aesthetics and techniques of intaglio etching, relief printing, and monotypes. Also includes an introduction to alternative, non-traditional approaches.

*Offered: Fall/Spring***ART 215 Painting I /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 110.**Recommended: ART 115.*

Studio course in beginning oil painting. Includes still-life object painting, landscape and figure studies. Also includes palette-mixing technique and stretcher bar building.

*Offered: Fall/Spring***ART 216 Screenprinting I /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 100.*

Introduction to screenprinting using water base and inks. Includes screen construction, the use of cut film, photo emulsion, stencil making techniques, printing techniques, and one-color and multi-color process work.

*Offered: Fall/Spring/Summer***ART 217 Painting II /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 115, 215.*

Continuation of ART 215. Includes advanced principles and practice of painting techniques. Also includes mixed media, the art market, and contemporary painting methods.

*Offered: Fall/Spring***ART 218 Screenprinting II /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 216.*

Continuation of ART 216. Advanced work in blockout, cut film, photo emulsion, photo film, and experimental stencil-making techniques.

*Information:* Students may select areas of interest for concentration and refinement of skills.*Offered: Fall/Spring/Summer***ART 219 Printmaking III /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 214.*

Continuation of ART 214. Includes non-traditional approaches to printmaking such as monotypes, planographic, or mixed media processes. Also involves advanced problems in traditional intaglio etching.

*Offered: Fall/Spring***ART 220 Sculpture /3 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s): ART 120 or consent of instructor.*

Exploration of methods, materials, and content used in sculpture. Includes modeling, casting, metal forming, construction techniques and carving. Also includes varied materials such as plaster, clay, cement, bronze, aluminum, steel, copper, wood, plastics, wax and mixed media.

*Offered: Fall/Spring/Summer***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: Fall***ART 250 Gallery and Museum Practices /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 100.**Recommended: Consult instructor for alternative prerequisites.*

Introduction to practices and procedures of galleries and museums. Includes management of student gallery spaces on campus. Also includes community involvement with local businesses.

*Offered: Fall/Spring***ART 260 Ceramics II /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 160.*

Continuation of ART 160. Includes further development of wheel thrown and hand-built forms, glaze composition, and application techniques.

*Offered: Fall/Spring/Summer***ART 261 Ceramics III /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 260.*

Advanced study for students who demonstrate mastery of ceramic skills and principles taught in ART 160 and 260. Includes clay composition, glaze calculation, and advanced design problems.

*Offered: Fall/Spring/Summer***ART 262 Ceramics IV /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 261.*

Advanced study for students who wish to design ceramic projects that would fit into an architectural setting. Includes the exploration of creative processes and the use of different approaches, materials, and technology to achieve design goals.

*Offered: Fall/Spring/Summer***ART 265 Furnace Glassblowing I /4 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 100.*

Introduction to the elements, tools, and basic principles of furnace glassblowing. Includes the discipline of working hot glass associated with the venetian style, or off hand glassblowing. Also includes molten glass manipulated with long blow pipes, rods, and other specialized tools, basic skill development in the manipulation of hot glass, procedures and precautions, with a focus on artistic development and design.

*Information:* This course requires a special fee. Please contact the Art Department at the West Campus for further information.*Offered: Fall/Spring***ART 266 Furnace Glassblowing II /4 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 265.*

Continuation of ART 265. Includes further information on the elements, tools, and principles of furnace glassblowing, continued skill development in the manipulation of hot glass, procedures and precautions, with an emphasis on artistic development and design. Also includes skill development and organization of steps, design elements, and procedures.

*Information:* This course requires a special fee. Please contact the Art Department at the West Campus for further information.*Offered: Fall/Spring***ART 270 Metalwork II: Jewelry /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 170.*

Jewelry design and production techniques. Includes casting, construction, cold forging, and stone setting in precious and non-precious metals.

*Offered: Fall/Spring***ART 271 Metalwork II: Smithing and Casting /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 170.*

Design and production of aesthetic and functional objects. Includes hot and cold forging, raising, forming, and casting using various metals such as copper, silver, bronze, steel, iron, and aluminum.

*Offered: Summer***ART 280 Weaving II /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): ART 180.*

Continuation of ART 180. Includes advanced study for students experienced on multi-harness looms. Students may select areas of interest for in-depth exploration.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered: Fall/Spring***ART 296 (11) Independent Study in ART: Art History /1-3 cr. hrs./1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s): Consent of instructor.*

Advanced projects in art history. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered: Fall/Spring***ART 296 (12) Independent Study in ART: Ceramics /1-3 cr. hrs./1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s): Consent of instructor.*

Advanced projects in ceramics. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered: Fall/Spring/Summer***ART 296 (13) Independent Study in ART: Metals /1-3 cr. hrs./1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s): Consent of instructor.*

Advanced projects in metals. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered: Fall/Spring/Summer*

**ART 296 (14) Independent Study in ART: Painting, Drawing, and Design /1-3 cr. hrs./1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s):* Consent of instructor.

Advanced projects in painting, drawing, and design. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered:* Fall/Spring/Summer**ART 296 (15) Independent Study in ART: Photography / 1-3 cr. hrs./1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s):* Consent of instructor.

Advanced projects in photography. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered:* Fall/Spring/Summer**ART 296 (16) Independent Study in ART: Printmaking /1-3 cr. hrs./ 1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s):* Consent of instructor.

Advanced projects in printmaking. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered:* Fall/Spring**ART 296 (17) Independent Study in ART: Sculpture /1-3 cr. hrs./ 1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s):* Consent of instructor.

Advanced projects in sculpture. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered:* Fall/Spring/Summer**ART 296 (18) Independent Study in ART: Fibers /1-3 cr. hrs./ 1.5-5 periods (.5-2 lec., 1-3 lab)***Prerequisite(s):* Consent of instructor.

Advanced projects in fibers. Content to be determined by conference between student and instructor.

*Information:* May be taken four times for a maximum of twelve credit hours.*Offered:* Fall/Spring**ASSEMBLY PRODUCTION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ASP 101 Assembly Production Processing /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAT 082.

Preparation and application of process materials for production hardware assembly. Includes safety, planning, surface preparation, bonding materials, bonding and sealants and encapsulation oven use. Also includes masking, marking and rework techniques.

*Offered:* Fall**ASP 103 Hydraulic Systems /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAT 082, WLD 150.

Principles and applications of hydraulic systems. Includes system operation, theory and safety, schematics and symbols, basic tools, assembly techniques, component operation and repair and troubleshooting.

*Offered:* Fall**ASP 105 Pneumatic Systems /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAT 082.

Principles and application of pneumatic systems. Includes system operation theory and safety, schematics and symbols, basic tools, assembly techniques, component operation and repair and troubleshooting.

*Offered:* Fall**ASP 107 Vacuum Systems /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAT 082.

Principles and application of vacuum systems. Includes vacuum fundamental principles, systems, pumps, gauges, materials and hardware, troubleshooting and leak detection.

*Offered:* Spring**ASP 111 Assembly Tools, Instruments, and Machines /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Skills to enhance the use of various hand assembly tools, assembly machines, measuring instruments, and devices in a manufacturing environment. Includes an introduction, definitions, hand and electric tools and hardware, machine tools, fixtures and clamps, wire strippers, spot tying, drilling and cutting tools, fastening tools, Heli-Coil, and optical equipment.

*Offered:* Fall/Spring**ASP 112 Manufacturing Electronic Assemblies /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* Consent of instructor.

Principles and techniques of manufacturing electronic assemblies. Includes wave soldering, inspection, cleaning, and conformal coating.

*Offered:* Fall**ASP 114 Prototype and Electronic Test Equipment Construction / 3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s):* CAD 116, TEC 126.

Construction and layout of prototype and test equipment. Includes electronic layout and schematics interpretation, internal electronic wiring, and mechanical assembly.

*Offered:* Fall/Spring**ASP 118 Physical Metrology /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s):* PHY 115.

Operation of electronic component preparation and insertion equipment. Includes the operation of the following equipment: terminal swaging and press, sequencer for axial leads, multimode inserter, automatic and semi-automatic component insertion, and Veritable Center Distance (VCD).

*Offered:* Spring**ASP 120 Metrology Measurement /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* Consent of instructor.

Principles and procedures in precision equipment standards. Includes safety and hand tools, troubleshooting, multimeter alignment and calibration, and documentation.

*Offered:* Spring**ASP 123 Electrical Measurement /4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* Consent of instructor.

Calibration, troubleshooting and electrical standards. Includes instrument calibrators, voltage standards, null detectors, differential voltmeters and digital multimeters, power supplies and an electrical measurement console.

*Offered:* Fall**ASP 126 Waveform Generation /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* ASP 120, MAT 116.

Creation, use and measurement of waveshapes. Includes sine, square, triangle and pulse waveshapes.

*Offered:* Fall**ASP 130 Waveform Analysis /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* ASP 120, MAT 116.

Parameters of waveshapes. Includes the use of counters, distortion analyzers, spectrum analyzers, oscilloscope and coupling techniques.

*Offered:* Spring**ASP 140 Surface Mount Assembly /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* Consent of instructor.

Principles and techniques of manufacturing surface mounted electronic assemblies. Includes solder screening, component placement, reflow, inspection, cleaning, and rework.

*Offered:* Spring**ASTRONOMY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**AST 101 Solar System /3 cr. hrs./3 periods (3 lec.)***Co-requisite(s):* AST 101LB.

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.

*Offered:* Fall/Spring/Summer**AST 101IN Solar System /4 cr. hrs./6 periods (3 lec., 3lab)**

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. hr./3 periods (3 lab)***Co-requisite(s):* AST 101.

Laboratory for AST 101. Includes in-class measurement and mathemati-

cal 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 AST101 lecture material.

*Offered: Fall/Spring/Summer*

### **AST 102 Stars, Galaxies, Universe /3 cr. hrs./3 periods (3 lec.)**

*Co-requisite(s):* AST 102LB.

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.

*Offered: Fall/Spring/Summer*

### **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 measurement and mathematical exercises, outside observation projects, independent studies, and self-initiated field trips to local astronomy facilities.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring*

### **AST 102 LB Stars, Galaxies, Universe Laboratory /1 cr. hr./3 periods (3 lab)**

*Co-requisite(s):* AST 102.

Laboratory for AST 102. Includes in-class measurement and mathematical exercises, outside observation projects, independent studies, and self-initiated field trips to local astronomy facilities. Emphasizes hands-on group and individual experiences and mathematical reasoning to enrich understanding of AST 102 lecture material.

*Offered: Fall/Spring*

### **AST 105/105LB/105IN Life in the Universe /4 cr. hrs./6 periods (3 lec., 3 lab)**

Multidisciplinary science, sometimes called astrobiology, focusing on the formation of the universe, the solar system, and life. Includes Earth's location in space and time, nature of life, light and the spectrum, origin of the universe, galaxies and stars, origin of the solar system, planetary atmospheres, origin and evolution of life on Earth, life on other solar system planets, and intelligent life around other stars. Also includes in-class laboratory exercises, group telescopic observation projects, and personal observation projects.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring*

### **AST 296 Independent Study in Astronomy /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

Experience in astronomical research, projects, or topical studies. Specific content to be determined by student and instructor.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered: Fall/Spring/Summer*

## **AUTOMOTIVE TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **AUT 100 Small Engine Troubleshooting and Repair /2 cr. hrs./4 periods (4 lab)**

Principles and procedures for overhauling, troubleshooting and repairing small engines. Includes safety, engine types and identification, engine operation and maintenance, disassembly and inspection, engine reconditioning and assembly, fuel and ignition system assembly, and mechanical operation and testing.

*Offered: Fall/Spring/Summer*

### **AUT 101 Automotive Maintenance /2 cr. hrs./2 periods (4 lab)**

Techniques of routine vehicle maintenance. Includes customer vehicle identification and handling, new vehicle pre-delivery inspection and preparation, safety inspection, lubrication tasks, and light line tasks.

*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, brake systems, air conditioning/heating sys-

tems, 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/Summer*

### **AUT 124 Automotive Diesel Engine Tune-up /3 cr. hrs./7 periods (1 lec., 6 lab)**

Maintenance of automotive diesel engines. Includes tune-up, assembly and calibration of fuel injectors, and diagnosis and repair of glow plug electronic control systems.

*Offered: Fall/Spring/Summer*

### **AUT 125 Tune-up and Emissions Troubleshooting /3 cr. hrs./7 periods (1 lec., 6 lab)**

Principles and procedures for diagnosing ignition, fuel, and mechanical control systems. Includes two and four barrel and computerized feedback carburetors, manifold system test and replacement, point and electronic ignition testing, replacement, and adjustment, emissions troubleshooting, timing belt replacement, and duraspark ignition analysis.

*Offered: Fall/Spring/Summer*

### **AUT 126 Engine Performance and Driveability Troubleshooting /3 cr. hrs./7 periods (1 lec., 6 lab)**

Diagnosis, service, and repair of On-board Diagnostics Generation One (OBD I) computerized engine control systems. Includes Chrysler turbocharged and multiport fuel injection (MPI) and electronic ignition systems, Ford central fuel injection (CFI) and electronic engine control IV (EEC IV) ignition systems, General Motors sequential fuel injection (SFI) and distributorless ignition systems, Nissan/Infiniti sequential fuel injection (SFI) and direct ignition systems, and General Motors throttle-body injection (TBI) and AC magnetic type ignition systems.

*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/Summer*

### **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, and 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 diagnosis and repair, operating systems and controls diagnosis and repair, and refrigerant recovery, recycling, and handling.

*Offered: Fall/Spring/Summer*

**AUT 180 Vehicle Inspection /25 cr. hr./75 period (.75 lab)**

*Prerequisite(s):* AUT 101, 105, 139 or equivalent experience and consent of instructor.

Rack and lift a vehicle for determining vehicle condition. Includes vehicle inspection – ground level and hoisted, work and parts orders, and report of findings.

*Will not be offered this year*

**AUT 185 Automotive Shop Skills Application /5-3 cr. hrs./1.5-9 periods (1.5-9 lab)**

*Prerequisite(s):* Completion of an AUT prefix course in the same specialty area and consent of instructor.

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.

*Offered: Fall/Spring/Summer*

**AUT 190 Automotive Internship /1-3 cr. hrs./5-15 periods (5-15 lab)**

*Prerequisite(s):* AUT 089, 101, 105, 128, 140, 142, and satisfactory completion of the proficiency exam with a minimum score of 80% on the written exam and 90% on the practical exam, and 3.5 Grade Point Average (GPA) in AUT course work.

Volunteer internship field work experience at an approved work site. Includes safety and hazardous materials handling, vehicle inspection, work and parts orders, thread and fastener repair, engine mechanical systems, engine performance, transmission and driveline systems, brake systems, heating, ventilating, and air conditioning (HVAC) systems, electrical systems, and suspension and steering systems.

*Information:* Enrollment and placement contingent upon completion of prerequisite courses, earned Grade Point Average, and satisfactory score on automotive proficiency exam.

*Information:* Designed for students in their third and fourth semester of course work in the automotive program.

*Offered: Fall/Spring/Summer*

**AUT 199 Co-op Related Class in AUT /1 cr. hr./1 period (1 lec.)**

*Co-requisite(s):* Concurrent enrollment in AUT 199WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**AUT 199WK Co-op Work in AUT /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Co-requisite(s):* Concurrent enrollment in AUT 199 Co-op Related Class.

A supervised cooperative work program for students in a related occupational area. Teacher-coordinators work with students and their supervisors.

Variable credit is available by special arrangement.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Will not be offered this year*

**AUT 233 Automatic Transmission/Transaxle Diagnosis and Rebuilding /3 cr. hrs./7 periods (1 lec./6 lab)**

*Prerequisite:* AUT 133, 266

Principles and procedures for front and rear wheel drive automatic transmission/transaxle overhaul. Includes personal and environmental safety, automatic transmission/transaxle diagnosis and service, and automatic transmission/transaxle in-vehicle and off-vehicle repair.

*Will not be offered this year*

**AUT 240 Automotive Anti-Lock Brakes Diagnosis and Repair /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* AUT 140.

Diagnosis and repair of anti-lock brake systems (ABS) and anti-lock brake-traction control (ABS-TCS). Includes personal and environmental safety, brake system fundamentals, and ABS and ABS-TCS electrical, mechanical, and hydraulic systems diagnosis and repair.

*Will not be offered this year*

**AUT 242 Automotive Air Conditioning (AC) Retrofit /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* AUT 142.

*Recommendation:* Experience in air conditioning repair.

Techniques for converting R-12 air conditioning systems to use refrigerant 134a or other alternatives. Includes personal and environmental safety, Environmental Protection Agency (EPA) regulations, air conditioning (AC) fundamentals, AC conversion cost analysis, AC component replacement, and AC system retrofit procedures.

*Will not be offered this year*

**AUT 261 Automotive Service Excellence (ASE) Test Preparation /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Field experience or five automotive classes, and consent of instructor.

Automotive Service Excellence (ASE) certification test review. Includes engine repair, electrical systems, engine performance, suspension and steering, brakes, air conditioning and heating, automatic transmission and transaxles, manual drive trains and axles, and Automotive Service Excellence test taking strategies.

*Offered: Fall/Spring/Summer*

**AUT 266 Advanced Engine Performance and Waveform Analysis /2 cr. hrs./4 periods (4 lab)**

*Prerequisite(s):* AUT 126 or consent of instructor.

Theory and diagnosis of On-board Diagnostics Generation Two (OBD II) computerized engine control systems. Includes safety and hazardous material handling, procedural direction and documentation, four and five gas emission analysis, waveform scope analysis, computer program strategies, alternative diagnostic methods, OBD II systems (1996-present), and case studies.

*Offered: Fall/Spring/Summer*

**AUT 297S1 Automotive Seminar /25-4 cr. hrs./25-16 periods (25-4 lec., 25-12 lab)**

*Prerequisite(s):* Consent of instructor.

Automotive job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Will not be offered this year*

**AUT 299 Co-op Related Class in AUT /1 cr. hr./1 period (1 lec.)**

*Co-requisite(s):* Concurrent enrollment in AUT 299 Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**AUT 299WK Co-op Related Class in AUT /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in AUT 299 Co-op Related Class.

A supervised cooperative work program for students in a related occupational area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Will not be offered this year*



## AVIATION TECHNOLOGY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### AVM 101 Structural Repair I /4 cr. hrs./8 periods (2 lec., 6 lab)

*Prerequisite(s):* Consent of instructor.

*Recommended:* Mathematics assessment above MAT 082.

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.

*Offered:* Summer

### AVM 102 Structural Repair II /4 cr. hrs./8 periods (2 lec., 6 lab)

*Prerequisite(s):* AVM 101.

Continuation of AVM 101. Includes safety, bend allowance, layout, fasteners, machine usage, patching techniques and structural repair techniques.

*Offered:* Fall

### AVM 105 Aircraft Sheetmetal Repair /4 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:* 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/Spring

### AVM 112 Composite Fabrication /3 cr. hrs./5 periods (1 lec., 4 lab)

Construction and processes using advanced composite materials, to include reinforcing fibers, matrix and core materials, manufacturing processes, composite safety, tools and equipment.

*Will not be offered this year*

### 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/Spring

### AVM 116 Tool Usage and Safety /2 cr. hrs./2 periods (2 lec.)

Safety precautions and equipment used while performing repair, installation or alterations to an aircraft. Basic hand tools, standard shop equipment, specialty equipment fixtures used while working with wood, metal and composites.

*Will not be offered this year*

### AVM 120 Aviation Electricity /4 cr. hrs./5 periods (3 lec., 2 lab)

Theory and application of direct and alternating-current electrical systems in aircraft. Includes electron theory, common circuit design, aircraft schematics, and the application of Ohm's Law in troubleshooting aircraft DC and AC electrical systems.

*Will not be offered this year*

### AVM 121 Aircraft Interior Installer I /5 cr. hrs./8 periods (2 lec., 6 lab)

Basic construction techniques for sheet metal and composite fixtures used in aircraft interiors. Includes machining of these materials, fastener installation, forming, preservative coatings, layout and marking to facilitate fabrication or assembly.

*Will not be offered this year*

### AVM 122 Aircraft Interior Installer II /5 cr. hrs./8 periods (2 lec., 6 lab)

*Prerequisite(s):* AVM 121.

Continuation of AVM 121. Includes airframe preparation for the installation, attachment and fitting of insulation, sound proofing, carpeting, wall and window panels. Also includes procedures and techniques for finish and touch-up painting.

*Will not be offered this year*

### AVM 123 Airframe Familiarization /3 cr. hrs./3 periods (3 lec.)

Structure and system functions of aircraft. Includes fuselage, control systems, support systems, ground handling and servicing and publications.

*Offered:* Spring

### AVM 124 Aircraft Interior Installer III /5 cr. hrs./7 periods (1 lec., 6 lab)

*Prerequisite(s):* AVM 122.

Continuation of AVM 122. Includes final installation of fixtures and support equipment, functional testing for fit, alignment trim and detail checks and touch up procedures. Also includes removal of protective coverings and temporary restraint devices to ready the interior for the acceptance inspection.

*Will not be offered this year*

### 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.

*Offered:* Fall/Summer

### AVM 150 Structural Repair III /4 cr. hrs./8 periods (2 lec., 6 lab)

*Prerequisite(s):* AVM 102.

Continuation of AVM 102. Includes repair publications, materials handling, cable fabrication, machining processes, protective coatings, hand forming and structural repair processes.

*Offered:* Fall

### AVM 151 Structural Repair IV /4 cr. hrs./8 periods (2 lec., 6 lab)

*Prerequisite(s):* AVM 150.

Continuation of AVM 150. Includes tube and hose fabrication, locking fasteners, damage classifications and structural repair processes.

*Offered:* Spring

### AVM 160 Aircraft Materials and Metallurgy /3 cr. hrs./3 periods (3 lec.)

Characteristics and properties of aircraft structural metals. Includes ferrous and non-ferrous metals, surface treatment, alloying, corrosion control and destructive and non-destructive testing.

*Offered:* 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 170 Aircraft Powerplant Familiarization /3 cr. hrs./3 periods (3 lec.)

Aircraft powerplant functions and systems. Includes reciprocating and turbine engine powerplants, requirements, hazards and safety, nacelles, cowlings pylon and mounting systems, and foreign object damage.

*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 material 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:* Spring

### AVM 203 Structural Repair V /4 cr. hrs./8 periods (2 lec., 6 lab)

*Prerequisite(s):* AVM 151, 160.

Continuation of AVM 151. Includes jiggging, shoring and alignment, corrosion and heat treatment and structural repair processes.

*Offered:* Spring

### AVM 204 Structural Repair VI /4 cr. hrs./8 periods (2 lec., 6 lab)

*Prerequisite(s):* AVM 203.

Continuation of AVM 203. Includes sealants and sealant applications, heat treatment, plastics and plastic repairs and structural repair processes.

*Offered:* Spring

### 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:* Spring

### 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/inspections, 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:* Spring

### 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 standard hardware, installation and assembly of specialty hardware, and precision measuring equipment.

*Offered:* Spring

**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, Kirchhoff's laws, circuit elements, electrical calculation and measurements, interpreting schematics and other wiring diagrams, battery theory and maintenance, aircraft electrical systems, and introduction to communication and navigation radio systems.

*Offered: Spring*

**AVM 209 Intermediate Electricity /5 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s): AVM 208.*

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.

*Offered: Summer*

**AVM 210/210LB Advanced Composite Aircraft Repair I /5 cr. hrs./7 periods (4 lec., 3 lab.)**

*Prerequisite(s): AVM 101, 105, or 110 and 115 (can be taken concurrently).*

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.

*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*

**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.

*Offered: Fall*

**AVM 220 Airframe Structures /6 cr. hrs./8 periods (4 lec., 4 lab)**

*Prerequisite(s): 30 months of experience, concurrently performing the duties of airframe and power plant maintenance, or 18 months of experience performing the duties appropriate to this rating.*

Principles and techniques of maintaining, repairing and building airframe structures. Includes federal aviation regulations, aerodynamic principles, assembly and rigging, weight and balance, woodworking techniques, welding and metallurgy, fabric coverings, aircraft finishes and structural repair.

*Will not be offered this year*

**AVM 221 Airframe Systems and Components /6 cr. hrs./8 periods (4 lec., 4 lab)**

*Prerequisite(s): 30 months of experience, concurrently performing the duties of airframe and power plant maintenance, or 18 months of experience performing the duties appropriate to this rating.*

Theory of operation, repair and maintenance of various aircraft systems and components. Includes direct current electrical systems, repair and troubleshooting, hydraulic and pneumatic systems, aircraft instrumentation, communication and navigation systems, air conditioning and pressurization, fire detection and extinguishing systems, and aircraft fuel systems.

*Will not be offered this year*

**AVM 222 Advanced Electrical Systems Airframe /5 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s): AVM 209.*

Theory and application of aircraft electrical power systems. Includes airframe systems and components, electronic flight instrument, auto pilots, serves and approach coupling systems, communication and navigation systems, antenna systems, fuel management, fluid quantity, pressure systems, AC, DC power generation and distribution, cabin temperature, pressurization, control systems, hydraulic power, landing gear safety sensor, auto brake and anti-skid systems, flight control, load and feel limiting and lighting systems.

*Offered: Fall*

**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: Summer*

**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 systems and their operations, and safety and maintenance requirements.

*Offered: Summer*

**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 230 Power Plant Mechanics /6 cr. hrs./8 periods (4 lec., 4 lab)**

*Prerequisite(s): 30 months of experience, concurrently performing the duties of airframe and power plant maintenance, or 18 months of experience performing the duties appropriate to this rating.*

Repair and maintenance of aircraft power plants. Includes reciprocating and gas turbine engines, theory of operating construction, overhaul procedures, lubrication systems, fuel metering systems, ignition systems, propellers and engine testing.

*Will not be offered this year*

**AVM 250 Structural Repair VII /4 cr. hrs./10 periods (1 lec., 9 lab)**

*Prerequisite(s): AVM 204.*

Simulated industry repair performance. Includes quality assurance, required paperwork and repairs to aircraft structures.

*Offered: Spring*

**AVM 260/260LB Advanced Composite Aircraft Repair II /4 cr. hrs./10 periods (1 lec., 9 lab.)**

*Prerequisite(s): AVM 210.*

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.

**Offered: Spring AVM 297 Aviation Seminar I./25-4 cr. hrs./25-16 periods (25-4 lec., 25-12 lab)**

*Prerequisite(s): Consent of instructor.*

Aviation job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Offered: Summer*

## BIOLOGY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### BIO 083 Oceanus: Marine Environment /3 cr. hrs./3 periods (3 lec.)

The marine environment as a unique feature of the planet Earth. Includes the formation of oceans, world-wide weather patterns, life forms in ocean environments from the intertidal zone to deep-sea rifts, the status of dolphins and whales and the future of the oceans in relation to the human species.

*Will not be offered this year*

### 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, chemistry, metabolism, reproduction, genetics, molecular biology, evolution, ecology, and current issues in biology.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Fall/Spring/Summer

### BIO 104IN Animal Sexual Behavior /4 cr. hrs./6 periods (3 lec., 3 lab)

Exploration of animal mating patterns via behavioral research. Includes the scientific process, evolution, animal diversity, genetics, and ecology.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Fall/Spring/Summer

### 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 is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Fall/Spring/Summer

### BIO 108IN Plants, People and Culture /4 cr. hrs./6 periods (3 lec., 3 lab)

Study of human use of plants integrating historical and cultural perspectives with present-day applications. Includes the importance of plants in the environment and plant function as it relates to human society. Also includes patent medicines, herbal remedies, origins of agriculture, food and fiber crops, and the production of alcoholic beverages.

*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, adaptations, 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/Summer

### 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.

*Offered:* Spring

### 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 the lecture and lab taught simultaneously.

*Offered:* Fall

### 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 biological diversity, reproduction, development and aging. Also includes current topics in human health and human impacts on the environment.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Fall/Spring

### BIO 127IN Human Nutrition and Biology /4 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 127.

*Offered:* Fall/Spring/Summer

### BIO 156IN Human Biology for Allied Health /4 cr. hrs./6 periods (3 lec., 3 lab)

Introduction to biology for the health professions. Includes the scientific process, basic chemistry of life, cell organelle structure and function, metabolism, cell cycle and division, molecular and Mendelian genetics, and an introduction to human tissue.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Fall/Spring/Summer

### 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) /4 cr. hrs./6 periods (3 lec., 3 lab)

*Prerequisite:* One semester college chemistry or equivalent. Assessed placement at MAT 122 and REA 091.

Principles of structure and function of living things at the molecular, cellular and organismic levels of organization. Includes introduction to the scientific process, chemistry of cells, organization of cells, metabolism, patterns of cell division, patterns of inheritance, nucleic acids, and biotechnology.

*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) /4 cr. hrs./6 periods (3 lec., 3 lab)

*Recommendation:* Completion of BIO 181

Additional principles of living things at the levels of organism, population, community, and ecosystem. Includes evolution of life, classification of organisms, survival strategies, interactions between organisms and with their environment, ecosystem structure, and human impacts upon the biosphere.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Fall/Spring/Summer

### BIO 183IN Marine Biology /4 cr. hrs./6 periods (3 lec., 3 lab)

Survey of marine environments and their biotic communities with 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 survey of plant kingdom.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Spring

### BIO 187IN Introduction to Biological Research /4 cr. hrs./6 periods (3 lec., 3 lab)

Introduction to the methods of research in biology. Includes scientific laboratory procedures, experimental design, scientific writing, bioethics, and current research in working laboratories.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Spring

### BIO 201IN Human Anatomy and Physiology I /4 cr. hrs./6 periods (3 lec., 3 lab)

*Prerequisite(s):* BIO 156 with a grade of C or better or completing a 200 level (or higher) Human Anatomy and Physiology course with a grade of C or better or a passing grade on the Biology Assessment Exam.

Structure and function of the body. Includes levels of organization, homeostasis and disease, anatomical terms, integumentary system, skeletal system and articulations, muscular and nervous systems, and special senses.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered:* Fall/Spring/Summer



**BIO 202IN Human Anatomy and Physiology II /4 cr. hrs./6 periods (3 lec., 3 lab) <**

*Prerequisite(s):* BIO 201IN with a grade of C or better.

Continuation of BIO 201IN. Includes the structure and function of the endocrine, cardiovascular, lymphatic/immune, 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 205IN Microbiology /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* One semester of a biological science.

Study of microorganisms and their relationship to health, ecology, and related fields. Includes classification, metabolism, microbial control, and immunity. Also includes an overview of viruses and the pathogenic fungi.

*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)**

*Prerequisite(s):* Consent of Instructor.

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)**

*Prerequisite(s):* Consent of Instructor.

Principles and methodologies of protein expression, isolation, identification, and purification. Includes immunological and cell culture techniques.

*Offered:* Spring

**BIO 210 Histology /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* BIO 156.

Introduction to the fundamentals of histology. Includes microscopy of human cells and tissues.

*Offered:* Fall

**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

**BIO 289 Fostering and Achieving Cultural Equity and Sensitivity for Health Professions (FACES) /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 and the University of Arizona.

*Offered:* Fall/Spring/Summer

**BIO 290 Field Biology: Ecological and Environmental Field Experience /1 cr. hrs./5 periods (5 lab)**

Field expeditions in which ecological and environmental principles and concepts are observed and studied. Includes natural organisms in the field area, biotic communities and ecosystems, human impacts on ecosystems, and the local government's role.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**BIO 295LB Independent Research in Biology /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* One semester of biology and consent of instructor.

Experience in scientific laboratory or field research. Specific content to be determined by student and instructor.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered:* Summer

**BIO 296 Special Projects /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* One year of biology.

Exploration of special interest areas. Content to be determined by student and facilitator/instructor.

*Information:* May be taken two times for a maximum of eight credit hours.

*Offered:* Fall/Spring/Summer

**BUILDING AND CONSTRUCTION TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**BCT 060 Building and Construction Technologies Pre-Vocational Mathematics /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* Mathematics assessment required.

Developmental mathematics for vocational programs. Includes whole numbers, decimals, common fractions, and improper fractions.

*Offered:* Fall/Spring/Summer

**BCT 100 Professionalism in Service for Building and Construction Technologies /1 cr. hr./1 period (1 lec.)**

Procedures in business and customer service. Includes an introduction to professionalism, self-evaluation, service routine, dealing with a dissatisfied customer, and problem situations.

*Offered:* Fall/Spring/Summer

**BCT 101 Principles of Construction /3 cr. hrs./3 periods (3 lec.)**

Building the human environment. Includes introduction to the construction industry, types of construction, regulations, patterns as a concept, methods, and construction process.

*Offered:* Fall/Spring

**BCT 102 Building Materials /3 cr. hrs./3 periods (3 lec.)**

Construction standards and specific types of building materials used in commercial, industrial, and private construction projects. Includes construction standards, site work, concrete, masonry, metals, wood and wood products, thermal and moisture protection, doors and windows, finishes, specialties, equipment, furnishings, special construction, conveying systems, mechanical systems, and electrical systems.

*Will not be offered this year*

**BCT 103 Principles and Concepts for HVAC-R /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 111, 113, 114, 115, 116 or concurrent enrollment and MAT 082 or assessment at MAT 086 or higher.

Basic air conditioning and refrigeration fundamentals. Includes air conditioning and refrigeration cycle, measuring temperature and pressures, mechanical refrigeration cycle, types of systems, compressors, condensers, evaporators, metering devices, controls, refrigeration cycle accessories, and refrigeration service techniques.

*Offered:* Fall/Spring/Summer

**BCT 104 Introduction to Equipment Maintenance /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 172, BCT 111, 113, 114, 115, 116 or concurrent enrollment, and MAT 082 or assessment at MAT 086 or higher.

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.

*Offered:* Fall/Spring/Summer

**BCT 106 Soldering and Brazing for Building and Construction Technologies /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 111, 113, 114, 115, 116 or concurrent enrollment, and MAT 082 or assessment at MAT 086 or higher.

Principles and techniques of joining different types of alloys by braze welding and soldering. Includes safety and health, procedures and design, precleaning and surface preparation, filler metals, fluxes and atmospheres, torch brazing, pipe and tube, copper, and cast iron.

*Offered:* Fall/Spring/Summer

**BCT 111 Basic Safety /1 cr. hr./1 period (1 lec.)**

Overview of safety rules and procedures for working on construction sites. Includes general and company safety policies, construction site job hazards and procedures, and personal protective equipment needs and uses. Also includes lifting, ladder and scaffold procedures, hazards, communications requirements, and fire and electrical safety guidelines.

*Offered:* Fall/Spring/Summer

**BCT 112 Basic Construction Mathematics /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Mathematics assessment required.

Addition, subtraction, multiplication and division of whole, decimal and fractional numbers. Includes percents, metric system, and use of calculators.

*Offered:* Fall/Spring/Summer

**BCT 113 Hand and Power Tools /1 cr. hr./1 period (1 lec.)**

Selection, use, maintenance and safety procedures for common hand and power tools. Includes applications to specific jobs in the construction industry.

*Offered:* Fall/Spring/Summer



**BCT 114 Blueprint Reading /1 cr. hr./1 period (1 lec.)**

Basic concepts of blueprints, including terms and symbols, grid line systems and blueprint production techniques. Includes dimensions and blueprint reading.

*Offered: Fall/Spring/Summer*

**BCT 115 Basic Rigging /1 cr. hr./1 period (1 lec.)**

Rigging safety, equipment and inspection. Includes crane hand signals, common rope knots, types of derricks and cranes and safety procedures for rigging and moving materials and equipment.

*Offered: Fall/Spring/Summer*

**BCT 116 Occupational Safety and Health Administration Safety Training for Building and Construction Technologies /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): BCT 111.*

Introduction to Occupational Safety and Health Administration (OSHA) standards, inspection procedures, and consultation services. Includes OSHA safety and training programs, safety procedures, rigging procedures, and confined space procedures.

*Information:* Open only to students enrolled in the Building and Construction Technologies program.

*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.

*Offered: Fall/Spring*

**BCT 122 Residential Construction /3 cr. hrs./5 periods (1 lec., 4 lab)**

Principles and procedures of residential construction. Includes safety, foundations, wall and roof construction, electrical, plumbing, mechanical, and interior/exterior finishing.

*Will not be offered this year*

**BCT 123 Concrete/Masonry /3 cr. hrs./5 periods (1 lec., 4 lab)**

Principles and techniques of masonry construction. Includes preparation, composition, protection, placement and curing of concrete, mortar and plaster. Also includes construction using brick, concrete block and stone.

*Offered: Fall*

**BCT 124 Gas Furnace Heating /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 126.*

Theories and concepts for gas furnace installation and operation. Includes principles of gas combustion, gas furnaces, gas burners, gas controls, gas ignition systems, safety and operating controls, gas furnace installation practices, ventilation and combustion air, and gas furnace troubleshooting.

*Offered: Fall/Spring/Summer*

**BCT 126 HVAC Electricity, Circuitry, and Controls /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 172.*

Electrical theory, circuits and components for air conditioning systems. Includes basic electricity, meters, circuit analysis, alternating current and voltage, electric motors and components, installation of HVAC systems, motor controls, control devices, National Electrical Code, control systems circuitry, and troubleshooting.

*Offered: Fall/Spring/Summer*

**BCT 127 HVAC Systems Applications /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 103 or concurrent enrollment.*

Principles and procedures of air conditioning and heating systems. Includes tools, controls, system charging, evaporative cooling, gas/oil/electric heating, heat pumps, and load calculation.

*Offered: Fall/Spring/Summer*

**BCT 128 HVAC Systems Service and Repair /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 127.*

Repair of air conditioning and heating equipment. Includes refrigerants, system evacuation and charging, water cooled systems, controls, operating conditions, troubleshooting, and Air Conditioning and Refrigeration Institute (ARI) Residential or Light Commercial certification.

*Offered: Fall/Spring/Summer*

**BCT 130 EPA Clean Air Act: Section 608 /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): Field Experience.*

Freon certification preparation. Includes basics of refrigerant bearing equipment, ozone depletion and the new legislation, technician categories covered, and the certification examination.

*Offered: Fall/Spring/Summer*

**BCT 135 National Electrical Code Residential Wiring Applications / 4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 172.*

Electrical wiring and installation conforming to National Electrical Code requirements. Includes grounded systems, requirements for overcurrent protection of conductors, ampacity criteria, installing overcurrent protection of conductors, installing services, installing motors and transformers, and remote control and signaling circuits, and installing structured wiring in homes and offices.

*Offered: Fall/Spring/Summer*

**BCT 145 Carpentry I /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 111, 113, 114, 115, 116 or concurrent enrollment, and MAT 082 or assessment at MAT 086 or higher.*

Theories and concepts for carpentry. Includes orientation to the trade, wood building materials, fasteners and adhesives, hand and power tools, floor systems, wall, ceiling, and roof framing, and windows and exterior doors.

*Offered: Fall/Spring/Summer*

**BCT 146 Woodworking /3 cr. hrs./5 periods (1 lec., 4 lab)**

Concepts and procedures for working with hardwoods. Includes introduction to hardwoods, measuring hardwoods, use of hardwoods, pressure treated wood, hardwood preparation, ripping wood, miter cuts, cross cut, job site safety, gluing and clamping, veneers, curves and circles, dados and rabbits, and smoothing.

*Offered: Spring*

**BCT 150 Plumbing Basics /4 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.

*Offered: Fall/Spring/Summer*

**BCT 152 Programmable Logic Controllers for Energy Management Systems I /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 172.*

Use and operation of Programmable Logic Controllers (PLC). Includes introduction to PLCs, number systems and codes, logic functions, and input/output addressing.

*Will not be offered this year*

**BCT 172 Building and Construction Technologies Electrical I / 4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 111, 113, 114, 115, 116, or concurrent enrollment, and MAT 082 or assessment at MAT 086 or higher.*

Concepts and procedures for building and construction electrical training. Includes safety, conduit bending, electrical theory, test equipment, print reading, and wiring applications.

*Offered: Fall/Spring/Summer*

**BCT 173 Building and Construction Technologies Electrical II / 4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 172.*

Continuation of BCT 172. Includes alternating current, motor installation, grounding of structures and equipment, conduit bending, electrical boxes and fittings, and conductor installations.

*Offered: Fall/Spring/Summer*

**BCT 174 Building and Construction Technologies Electrical III /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): BCT 173.*

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.

*Offered: Fall/Spring/Summer*

**BCT 185 Residential Energy Audit /3 cr. hrs./3 periods (3 lec.)**

Arizona's Home Energy Rating System (HERS) Program. Includes energy auditing, heat energy and energy loss, conservation practices and measures, finance and sales, and computer modeling.

*Will not be offered this year*

**BCT 190 Fieldwork for Construction /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s): Consent of instructor.*

Supervised fieldwork experience on a specific construction project at the project site.

*Information:* May be taken four times for a maximum of thirty-two credit hours.

*Offered: Fall/Spring/Summer*

**BCT 199 Co-op Related Class in BCT /1 cr. hr./1 period (1 lec.)**

*Co-requisite(s): Concurrent enrollment in BCT 199WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring/Summer

**BCT 199WK Co-op Work in BCT /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Co-requisite(s):* Concurrent enrollment in BCT 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*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)**

*Prerequisite(s):* GTM 105 or MAT 086 or satisfactory score on the Mathematics assessment test.

Principles and techniques of construction surveying. Includes taping, leveling, transit, contour and topographic mapping, and construction surveying.

*Offered:* Spring

**BCT 222 Commercial HVAC Systems /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 128 or appropriate field experience.

Principles and components for commercial air conditioning and heating systems. Includes types and functions, refrigeration systems, chilled water systems, distribution systems, calculations and formulas, and troubleshooting and service.

*Offered:* Fall/Spring/Summer

**BCT 223 Pneumatic HVAC Controls /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* BCT 128 or appropriate field experience.

Pneumatic controls for HVAC systems. Includes major components, controlled devices, relays, thermostats and calibration.

*Offered:* Fall/Spring/Summer

**BCT 225 Electrical Distribution and Motor Controls for Buildings /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 126 or 135.

Theory and troubleshooting of complex electrical distribution and motor circuitry found in commercial and industrial buildings. Includes plant power distribution, static and manual controls, sensing and timing controls, electromagnetic control switches, electrical control switches, alternating current and direct current motors and motor control circuits, preventative maintenance, troubleshooting, and programmable logic controllers.

*Offered:* Fall/Spring/Summer

**BCT 235 National Electric Code Commercial Wiring Applications /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 135.

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.

*Offered:* Fall/Spring/Summer

**BCT 242 Cross-Connection Control /3 cr. hrs./5 periods (1 lec., 4 lab)**

*Prerequisite(s):* BCT 150.

Protection of potable water systems back flow. Includes theory of cross-connection control, regulations, plumbing codes, inspector and tester responsibilities, and repair and testing of backflow assemblies. Emphasis is placed on assembly testing, troubleshooting and repair.

*Offered:* Fall/Spring/Summer

**BCT 245 Carpentry II /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 145.

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.

*Offered:* Spring

**BCT 246 Carpentry III /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 245.

Continuation of BCT 245. Includes types of reinforcing material, handling and placing concrete, manufactured and job-build forms, plot plan layout, and light construction equipment.

*Will not be offered this year*

**BCT 252 Programmable Logic Controllers for Energy Management Systems II /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 152.

Continuation of BCT 152. Includes discrete input/output system, analog input/output system, PLC control software programming, and control system implementation and programming.

*Will not be offered this year*

**BCT 271 Building and Construction Technologies Electrical IV /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 174.

Continuation of BCT 174. Includes distribution equipment, distribution system transformers, electricity in HVAC systems, over-current protection, conductor selection and calculations, raceway, box and fitting, and fill requirements.

*Offered:* Fall

**BCT 272 Building and Construction Technologies Electrical V /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 271.

Continuation of BCT 271. Includes wiring devices, motor controls, motor calculations, motor maintenance, and hazardous locations.

*Offered:* Spring

**BCT 273 Building and Construction Technologies Electrical VI /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 272.

Continuation of BCT 272. Includes high voltage terminations/splices, load calculations, electric theory, specialty lighting, and advanced motor maintenance.

*Will not be offered this year*

**BCT 274 Building and Construction Technologies Electrical VII /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* BCT 273.

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.

*Will not be offered this year*

**BCT 280 International Building Code (IBC) I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Field Experience.

Major systems of building construction (other than residential) with structural and nonstructural provisions. Includes administration, use and occupancy classification, types of construction, general building heights and area, fire resistance-rated construction, fire protection systems, and means of egress.

*Offered:* Fall

**BCT 281 International Building Code (IBC) II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* BCT 280.

Continuation of BCT 280. Includes means of egress, accessibility, detailed occupancy requirements, exterior wall coverings, roofs and foundations, special inspections, interior finishes, gypsum board and interior environment, elevators, glazing, skylights, and plastics.

*Offered:* Spring

**BCT 282 International Mechanical Code (IMC) /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Field Experience.

Major components of mechanical air systems in building construction. Includes administration, definitions, general regulations, ventilation, exhaust systems, duct systems, combustion air, chimney and vents, appliances and fireplaces, boilers and water heaters, refrigeration gas, hydronic piping, fuel oil piping and storage, and solar systems.

*Will not be offered this year*

**BCT 283 International Plumbing Code (IPC) /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Field Experience.

Major plumbing systems of building construction. Includes administration, definitions, general regulations, fixtures, faucets and fixture fittings, water heaters, water supply and distribution, sanitary drainage, indirect/special waste, vents, traps, interceptors and separators, storm drainage, and special piping and storage systems.

*Will not be offered this year*

**BCT 284 National Electric Code for Building and Construction Technologies /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): Field Experience.*

Theory and application of electrical wiring and equipment installation standards. Includes general electrical theory, service, feeders, branch circuits, calculations for dwelling type occupancies, electrical circuit design for commercial and industrial occupancies, installation rules for specific circuits or systems, installation of general circuits and equipment, installation rules for distribution equipment, and special equipment and occupancies.

*Offered: Fall/Spring/Summer***BCT 286 International Residential Code (IRC) I /3 cr. hrs./3 periods (3 lec.)***Recommended: Field Experience*

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.

*Offered: Spring***BCT 287 International Residential Code (IRC) II /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): BCT 286.*

Continuation of BCT 286. Includes energy efficiency, mechanical systems, plumbing systems, electrical systems, and referenced standards.

*Offered: Fall***BCT 296 Independent Study in Building and Construction Technologies /1-4 cr. hrs./3-12 periods (3-12 lab)***Prerequisite(s): Consent of instructor.*

Independent readings or special projects. Content to be determined by conference between student and instructor.

*Offered: Fall/Spring/Summer***BCT 297 Building and Construction Technologies Seminar / .25-4 cr. hrs./ .25-4 periods (.25-4 lec., 0 lab)***Prerequisite(s): Consent of instructor.*

Building and Construction Technologies job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Will not be offered this year***BCT 299 Co-op Related Class in BCT /1 cr. hr./1 period (1 lec.)***Co-requisite(s): Concurrent enrollment in BCT 299WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.*Offered: Fall/Spring/Summer***BCT 299WK Co-op Work in BCT /1-8 cr. hrs./5-40 periods (5-40 lab)***Co-requisite(s): Concurrent enrollment in BCT 299 Co-op Related Class.*

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.*Offered: Fall/Spring/Summer***BUSINESS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**BUS 100 Introduction to Business /3 cr. hrs./3 periods (3 lec.)**

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 Business on the Internet /3 cr. hrs./3 periods (3 lec.)**

Conducting business on the Internet. Includes electronic-commerce terminology, Internet business applications, building a successful website, legal and security issues, and marketing on the Internet. Also includes hands-on assignments and projects.

*Offered: Fall/Spring***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.)***Prerequisite(s): MAT 082 or satisfactory assessment test score.*

Fundamental mathematical procedures designed for practical utility in the business environment. Includes payroll, bank records, purchasing, sales, consumer credit, insurance, taxes, interest, inventory, depreciation, stocks and bonds, financial statements, and introductory statistics.

*Offered: Fall/Spring/Summer***BUS 205 Statistical Methods in Economics and Business /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MAT 172 or 173.*

Introduction to statistical concepts and methods of business. Includes statistics, data, and statistical thinking, methods for describing sets of data, probability, discrete random variables, continuous random variables, sampling distributions, estimation with confidence intervals, tests of hypothesis, inferences based on two samples, correlation and regression, methods for quality improvement, time series, design of experiments and analysis of variance, nonparametric statistics, and categorical analysis.

*Offered: Fall/Spring/Summer***BUS 210 International Business /3 cr. hrs./3 periods (3 lec.)***Recommended: BUS 100.*

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 various foreign business societies.

*Offered: Fall/Spring***BUS 220 Legal Environment of Business /3 cr. hrs./3 periods (3 lec.)**

Legal, ethical, and international environment of business. Includes an introduction to law, ethics and corporate responsibility, judicial system and litigation, alternative dispute resolution, administrative agencies, crimes and torts, contract law, product liability, international business law, agency law, and legal forms of business enterprises.

*Offered: Fall/Spring/Summer***BUS 299 Co-op Related Class in BUS /1 cr. hr./1 period (1 lec.)***Corequisite(s): Concurrent enrollment in BUS 299WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.*Offered: Fall/Spring/Summer***BUS 299WK Co-op Work in BUS /1-8 cr. hrs./5-40 periods (5-40 lab)***Corequisite(s): Concurrent enrollment in BUS 299 Co-op Related Class.*

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.*Offered: Fall/Spring/Summer***CHEMISTRY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CHM 080 Preparation for General Chemistry /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MAT 092.*

Fundamentals of chemistry. Includes nomenclature, atomic structure, bonding, chemical equations, moles, stoichiometry, the periodic table, conversions, problem-solving techniques and study skills.

*Information:* Designed to prepare students for CHM 151.*Offered: Fall/Spring/Summer***CHM 121/121LB/121IN Chemistry and Society I /4 cr. hrs./5 periods (3 lec., 2 lab)**

Basic chemistry and its relationship to everyday experiences. Includes classification and structure of matter, basic principles of chemical reaction and their environmental and societal impact.

*Information:* Designed for non-science majors, education majors, and the general public.*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.*Offered: Fall/Spring/Summer*



**CHM 122/122LB/122IN Chemistry and Society II /4 cr. hrs./ 5 periods (3 lec., 2 lab)***Prerequisite(s): CHM 121.*

Continuation of CHM 121. Includes organic chemistry as it relates to consumer products and pollution of our environment. Also includes biochemistry and physiochemistry and their relationship to medicines, drugs, health and food products. *Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Will not be offered this year***CHM 125/125LB/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 and no previous chemistry background is required. Includes the chemistry of toothpaste, deodorants, cosmetics, soaps and detergents, foods, fabrics, toys, paints, plastics and other products commonly found in the kitchen, laundry, bathroom, bedroom, and workshop.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring***CHM 128/128LB/128IN Forensic Chemistry /4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s): Consent of instructor.*

Practice, evolution, and trends in the use of chemistry and physical science in forensics studies. Includes the study of scientific criminology, scientific methods, applications of chemistry in DNA, crime scene evidence analysis, ballistics and terrorism. Also includes the discussion of implications and effects of these applications on the law, courts, and society.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer***CHM 130/130LB/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.

*Information:* Adapted to the needs of students in allied health programs.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer***CHM 140/140LB/140IN Fundamental Organic and Biochemistry / 5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s): CHM 130 lecture and lab with a grade of C or better, or high school chemistry within the last three years or consent of instructor.*

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.

*Information:* Adapted to the needs of students in nursing and other health professions.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer***CHM 151/151LB/151IN General Chemistry I /5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s): MAT 122 and CHM 080 or CHM 130 with a grade of C or better, or placement on the chemistry assessment at the CHM 151 level.*

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.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer***CHM 152/152LB/152IN General Chemistry II /5 cr. hrs./7 periods (4 lec., 3 lab)***Prerequisite(s): CHM 151.*

Continuation of CHM 151. Includes emphasis on certain chemical concepts such as chemical kinetics, equilibrium, acids and bases, thermodynamics, and electrochemistry.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer***CHM 195 Introduction to Research in Chemistry /4 cr. hrs./ 4 periods (4 lec.)***Prerequisite(s): Consent of instructor.*

Introduction to the methods of research in chemistry. Includes scientific laboratory procedures, experimental design, scientific writing, scientific ethics, and current research in working laboratories.

*Offered: Fall/Spring/Summer***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: Fall/Spring/Summer***CHM 235/235LB/235IN General Organic Chemistry I /5 cr. hrs./ 7 periods (4 lec., 3 lab)***Prerequisite(s): CHM 152.*

Fundamentals of organic chemistry. Includes classification, occurrence, synthesis, analysis, stereo-chemistry and reaction mechanisms of important classes of organic compounds, notably alkanes, alkenes, alkyl halides and organometallics.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer***CHM 236/236LB/236IN General Organic Chemistry II /5 cr. hrs./7 periods (4 lec., 3 lab)***Prerequisite(s): CHM 235.*

Continuation of CHM 235. Includes emphasis on synthesis and the use of chemical and instrumental methods as means of identification. Also includes focus on remaining classes of organic compounds, including alkynes, alcohols, ethers and epoxides, aldehydes, ketones, acids, acid derivatives, aromatics and nitrogen containing compounds.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer***CHM 295LB Independent Research in Chemistry /1-4 cr. hrs./ 3-12 periods (3-12 lab)***Prerequisite(s): One semester of chemistry and consent of instructor.*

Experience in scientific laboratory research. Specific content to be determined by student and instructor.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered: Fall/Spring/Summer***CHILD DEVELOPMENT ASSOCIATE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CDA 103 Planned Arrangements and Schedules /1 cr. hr./1 period (1 lec.)**

Strategies for lesson planning and creation of schedules for use in the classroom. Includes preparation of written lesson plans, schedules based on children's abilities, past experiences, present circumstances and educational objectives of the program.

*Offered: Fall/Spring/Summer***CDA 104 Ensuring a Safe Environment for Children /1 cr. hr./1 period (1 lec.)**

Exploration of the issues of creating a safe environment for children. Includes planning for children's safety by providing them with the skills and information regarding safety rules and concerns. Also includes planning for reduction of accidents by center personnel and designation of areas of responsibility.

*Offered: Fall/Spring/Summer***CDA 112 Guidance Principles for Encouraging Self-Discipline / 1 cr. hr./1 period (1 lec.)**

Development of guidelines for using positive discipline techniques in the classroom. Includes learning to set up a positive atmosphere to encourage children to display appropriate behaviors. Also includes learning ways to set consequences which are age-appropriate and communicated clearly to the children.

*Offered: Spring***CDA 114 Collecting, Organizing and Using Teaching Aids /1 cr. hr./ 1 period (1 lec.)**

Survey of teaching aids used in the classroom. Includes learning about different types of teaching aids, how to organize and update existing teaching aids and how to utilize the teaching aids in your program.

*Offered: Fall***CDA 119 Providing a Healthy Environment for Children /1 cr. hr./1 period (1 lec.)**

Examination of wellness to benefit the early childhood classroom setting. Includes identifying procedures for wellness in children and staff such as using daily routines, hand washing procedures, diaper changing procedures, identification of illness, and healthy lifestyle information.

*Offered: Fall/Spring/Summer*



**CDA 120 The Child's Total Learning Environment /1 cr. hr./1 period (1 lec.)**

Analysis of the total learning environment for children. Includes learning about the child's total learning environment and how this environment meets individual needs. Also includes developing competencies about children's rates and styles of learning, the benefits of play, the selection of educational materials, the advantage of well-planned activities, and the inclusion of activities in both indoor and outdoor environments.

*Offered: Spring*

**CDA 121 Techniques for Observing Children /1 cr. hr./1 period (1 lec.)**

Development of techniques for observing, recording and interpreting behavior in children. Includes application of techniques used in making observations of children.

*Offered: Fall/Spring/Summer*

**CDA 126 Literature for Preschool Children /1 cr. hr./1 period (1 lec.)**

Survey of materials and techniques for the selection and evaluation of children's literature. Includes exploration of children's literature at various age levels. Also includes using techniques of story telling in the classroom.

*Offered: Spring*

**CDA 127 Blocks in the Early Childhood Program /1 cr. hr./1 period (1 lec.)**

Examination of teaching techniques for using block play in the classroom. Includes the development of an understanding of the importance of block play, the equipment and space needed, and the time necessary for fulfillment of block play activities.

*Offered: Summer*

**CDA 128 Record Keeping Skills for Daily Infant/Toddler Care Programs /1 cr. hr./1 period (1 lec.)**

Analysis of the benefits of record keeping for effective planning, implementing, and evaluating of programs. Includes techniques of record keeping, use of records for planning and evaluation, and long-range program planning.

*Offered: Fall*

**CDA 129 Organization of Space, Materials and Equipment for Infants and Toddlers /1 cr. hr./1 period (1 lec.)**

Exploration of how to effectively organize classroom space, materials and equipment for infants and toddlers. Includes techniques of space management, equipment selection and placement, safety concerns, and effective organization of the classroom for maximum learning.

*Offered: Fall*

**CDA 130 Observation Skills of Infants and Toddlers /1 cr. hr./1 period (1 lec.)**

Analysis of the skills required to observe and record infant and toddler behavior. Includes techniques and evaluation methods for utilizing observations.

*Offered: Fall*

**CDA 131 Building Relations with Parents Through Communication /1 cr. hr./1 period (1 lec.)**

Identification of the skills needed to work effectively with parents. Includes working to ensure continuity between school and home and the development of a trust relationship. Also includes techniques used to gain cooperation from parents.

*Offered: Fall/Spring/Summer*

**CDA 132 Supporting the Growth and Education of Parents /1 cr. hr./1 period (1 lec.)**

Strategies for working with parents to develop positive discipline techniques, open communications, and mutual trust and respect. Includes how to communicate parenting tips, recruit volunteers for the classroom, and develop newsletters and effective daily communications. Also includes development of cultural awareness, family support networks, and community resources for families in need.

*Offered: Fall/Spring/Summer*

**CDA 133 Enhancing Family Involvement /1 cr. hr./1 period (1 lec.)**

Strategies for working with parents of early learners. Includes developing a parent handbook, encouraging parent involvement in the program, sharing goals and objectives with parents, bridging home and school, conducting parent meetings and open houses, and planning for communication.

*Offered: Fall/Spring/Summer*

**CDA 134 Using Observation in the Infant/Toddler Program /1 cr. hr./1 period (1 lec.)**

Identification of types of information which can be gained from observation. Includes purpose of observation, collection and interpretation of observations, activities developed from observations, and identification of observed behaviors.

*Offered: Spring*

**CDA 135 Childcare Facility: Startup, Equipment, and Budgets /1 cr. hr./1 period (1 lec.)**

Start-up procedures of a childcare facility. Includes introduction to early childhood education, planning program type, site selection, start-up elements, facility and equipment, and budgeting.

*Offered: Fall*

**CDA 136 Childcare Facility: Staff Selection and Training /1 cr. hr./1 period (1 lec.)**

Selection and training of staff for a childcare facility. Includes procedures for staff selection, staff training and development, and program evaluation methods.

*Offered: Fall*

**CDA 137 Childcare Facility: Health, Evaluation, and Community Partners /1 cr. hr./1 period (1 lec.)**

Wellness, program evaluation, and community partnership issues associated with a childcare facility. Includes nutrition, health, and safety services, program evaluation, programs for parents and volunteers, professional activities and organizations, public relations, relationships with governmental agencies, and fund-raising procedures.

*Offered: Fall*

**CDA 138 Building Parent and Classroom Connections /2 cr. hrs./2 periods (2 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 communication with families, parent-teacher conferences, home visits, families in the classroom, community involvement, working with families from diverse backgrounds and families in particular circumstances, resolving troublesome attitudes and behaviors, and parent-involvement programs that work.

*Offered: Fall*

**CDA 141 Fostering Communication and Language /1 cr. hr./1 period (1 lec.)**

Examination of the techniques for fostering communication skills and language development. Includes defining communication, predicting "normal" communication milestones, assessing language development and communication skills, and encouraging expressive communication.

*Offered: Spring*

**CDA 142 Beginning Mathematical Concepts /1 cr. hr./1 period (1 lec.)**

Analysis of general principles of mathematical concept acquisition. Includes competencies in mathematics such as classification, seriation, numbers, spatial relations, and temporal relations.

*Offered: Fall*

**CDA 143 Science and Discovery /1 cr. hr./1 period (1 lec.)**

Theories, methods, and techniques for teaching science and discovery. Includes learning the process of discovery, initiating and integrating science experiences, creating a science area, finding natural science settings, and planning science experiences.

*Offered: Fall*

**CDA 151 Nutrition /1 cr. hr./1 period (1 lec.)**

Examination of basic nutrition. Includes nutrition needs of young children; social, psychological, cultural and religious connections to food; mealtime experiences; plans for nutritional experiences and programs.

*Offered: Fall/Spring/Summer*

**CDA 152 Enhancing Questioning and Problem Solving Abilities /1 cr. hr./1 period (1 lec.)**

Analysis of techniques for the development of question and problem solving abilities. Includes facts about problem solving, the steps involved, and factors to be considered. Also includes developing problem solving activities using individual and group settings.

*Offered: Fall*

**CDA 155 Understanding How Children Learn /1 cr. hr./1 period (1 lec.)**

Exploration of the natural skills of children. Includes planning learning activities, discovering ways children learn, exploring cognitive learning, skill development, and concept acquisition. Also includes exploring the role of the teacher and evaluating outcomes of skill development.

*Offered: Spring*

**CDA 161 Enhancing a Positive Self-Concept /1 cr. hr./1 period (1 lec.)**

Analysis of self-concept in children. Includes defining the self-concept and self-esteem, examining factors influencing the development of the self-concept, seeking the uniqueness in each child, and creating an environment for success. Also includes acceptance of the expression of authentic feelings, stages of emotional development, and activities to encourage the expression of feelings.

*Offered: Spring*

**CDA 170 Ages and Stages of Young Children: Prenatal through Toddler /1 cr. hrs./1 periods (1 lec.)**

Examination of the developmental stages pre-birth through toddlerhood. Includes principles of human development, Cognitive and personality development, biological and environmental factors, conception to birth, birth process and method of delivery, developmental milestones, issues in infant care, problems during infancy, toddler care issues, developmental concerns and disturbances, physical development in infancy and toddlerhood, language and cognitive development, and social development in toddlers.

*Offered: Fall/Spring/Summer*

**CDA 173 Ages and Stages of Young Children: The Preschool Years / 1 cr. hr./1 period (1 lec.)**

Examination of the developmental stages of preschool children ages 18 months to 5 years. Includes physical characteristics, motor skill development, cognitive development, and socio-emotional development. Also includes issues in early childhood programs and developmental health issues.

*Offered: Fall/Spring/Summer*

**CDA 201 Music and Creative Movement /1 cr. hr./1 period (1 lec.)**

Exploration of music and movement. Includes how to develop self-confidence and skills in music and movement. Also includes developing skills in singing with children, selecting appropriate music, using rhythm activities, encouraging creative movement, and using music with activities.

*Offered: Fall/Spring/Summer*

**CDA 202 Dramatic Play /1 cr. hr./1 period (1 lec.)**

Strategies for using dramatic play for learning. Includes defining types of dramatic play and identifying the value of dramatic play. Also includes planning for unlimited dramatic play, using dramatic play in the learning environment, selecting books, music and tapes, relating dramatic play to themes and units, and defining the role of the teacher.

*Offered: Fall/Spring/Summer*

**CDA 203 Creative Media /1 cr. hr./1 period (1 lec.)**

Survey of principles, materials, and techniques used in developing creative media. Includes defining creativity, discussing creative development, designing the creative media area, and guiding the creative media area. Also includes the process of creating, creative media activities, the creative process, and evaluation in the creative media area.

*Offered: Fall/Spring/Summer*

**CDA 211 Large Muscle Development /1 cr. hr./1 period (1 lec.)**

Examination of large muscle development and its relation to cognitive learning. Includes defining large muscle development and its sequence in children. Also includes design of activities to promote large muscle development, creation of the learning environment, supervision techniques used, and plans for activities including various types and levels of development.

*Offered: Spring*

**CDA 212 Small Muscle Development /1 cr. hr./1 period (1 lec.)**

Examination of small muscle development and its relation to cognitive development. Includes defining small muscle development and its sequence in children. Also includes design of activities to promote small muscle development, creation of the learning environment, supervision techniques used, and plans for activities including various types and levels of development.

*Offered: Spring*

**CDA 221 Planning and Implementing a Bilingual Program /1 cr. hr./1 period (1 lec.)**

Strategies for creating a bilingual program. Includes examination of the elements of language and how it relates to bilingual education. Also includes assessing how the teacher's attitude affects learning, evaluating current language skills, setting program expectations and goals, and developing a plan to implement a bilingual program.

*Will not be offered this year*

**CDA 222 Elements of Children's Culture /1 cr. hr./1 period (1 lec.)**

Examination of the ways culture affects children's learning. Including building identities through social interaction and developing positive personal attitudes. Also including an analysis of racial similarities and differences, gender role identity, disabilities, cultural differences, the physical environment, implementing culture into the daily routine, and parent involvement.

*Offered: Spring*

**CDA 224 Applications of Cognitive Development /1 cr. hr./1 period (1 lec.)**

Analysis of how babies grow and learn. Including investigations of developmental milestones; stages of egocentrism; concepts of object permanence, causality, time and space; development of memory, problem solving skills, and color and number perception. Also includes ways to serve as a resource for parents.

*Offered: Fall*

**CDA 225 Language Development of Infants and Toddlers /1 cr. hr./1 period (1 lec.)**

Examination of how language develops in infants and toddlers. Includes the essence of communication, receptive and expressive language skills, and landmarks of language. Also includes ways to stimulate language development, opportunities for language activities, and identification of language delays.

*Offered: Spring*

**CDA 226 Learning Principles and Theories of Cognitive Development /1 cr. hr./1 period (1 lec.)**

Analysis of learning principles and cognitive development theories. Includes sensory-perceptual awareness, egocentrism, cognitive development milestones, memory, concept formation and problem solving. Also includes ways to share information with parents.

*Offered: Spring*

**CDA 227 Sensorimotor Learning in Infancy and Toddlerhood / 1 cr. hr./1 period (1 lec.)**

Examination of sensorimotor learning in infancy and toddlerhood. Includes principles of sensorimotor awareness, egocentrism, cognitive development milestones, development of memory, concept formation and problem solving. Also includes ways to share information with parents.

*Offered: Fall*

**CDA 228 Autonomy and Positive Self-Concept of Infants and Toddlers /1 cr. hr./1 period (1 lec.)**

Analysis of the development of trust and autonomy in infants and toddlers. Includes factors influencing the development of self-concept, individualized routine care, designing the environment, developing skills based on interest, dealing with individual differences, and assisting parents.

*Offered: Fall*

**CDA 229 Child Development Associate Assessment Preparation / 3 cr. hr./3 period (3 lec.)**

Strategies for completion of the CDA Assessment. Includes documentation requirements, resource file, direct assessment application form, and verification visit requirements.

*Offered: Fall*

**CDA 230 Working with Families of Children with Special Needs / 1 cr. hr./1 period (1 lec.)**

Investigation of the needs of working with families who have children with special needs. Includes dealing with the emotional stress, encouraging parent participation, using the "family approach," learning about parents' rights, and working with families.

*Will not be offered this year*

**CDA 231 Planning the Educational Program for Children with Special Needs /1 cr. hr./1 period (1 lec.)**

Analysis of programs for children with special needs. Includes early identification, observations, mainstreaming or inclusion, assessment and diagnosis. Also includes creating an IEP and creating individualized activities.

*Will not be offered this year*

**CDA 232 Children with Special Needs and the Basics of Inclusion /1 cr. hr./1 period (1 lec.)**

Analysis of inclusion (mainstreaming) in the classroom. Includes types of special needs, teacher expectations, and individual learning styles. Also includes how inclusion works and the legal issues of inclusion.

*Will not be offered this year*

**CDA 235 Guidance and Discipline of Infants and Toddlers /1 cr. hr./1 period (1 lec.)**

Examination of effective ways to guide and discipline infants and toddlers. Includes defining discipline versus punishment, types of appropriate discipline, and specific guidance techniques. Also includes dealing with temper tantrums, succeeding with toilet training, setting rules and limits, creating appropriate environments for exploration, and communicating with parents.

*Offered: Fall*

**CDA 253 Physical Development in Infancy /1 cr. hr./1 period (1 lec.)**

Examination of the physical development of infants. Includes characteristics at birth, reflexes, physical strength and control, and gross motor development. Also includes how to share growth information with parents.

*Offered: Fall*

**CDA 254 Physical Development in Toddlerhood /1 cr. hr./1 period (1 lec.)**

Examination of the physical development of toddlers. Includes physical characteristics of toddlers, physical strength, and gross motor development. Also includes how to share information on toddler development with parents.

*Offered: Fall*

**CDA 256 Math for School Age Children /1 cr. hr./1 period (1 lec.)**

Analysis of appropriate math concepts and activities for school age children.

dren. Includes the links between intellectual development and mathematical concepts learning. Also includes developing math concepts, teaching problem-solving, and exploring the strands of mathematics.

*Offered: Fall*

**CDA 257 Record Keeping for the Family Child Care Provider /1 cr. hr./1 period (1 lec.)**

Strategies for the development of a record keeping system to use in child care. Includes operating a small business, and organizing records. Also includes income tax forms, special tax liabilities and responsibilities, and important records to retain.

*Offered: Summer*

**CDA 258 Family Child Care as a Small Business /1 cr. hr./1 period (1 lec.)**

Examination of the aspects of family child care as a small business. Includes the role of the family child care provider, licensing and certification, insurance requirements, development of a business plan, and agreements between parents and providers.

*Offered: Summer*

**CDA 259 Balancing Work and Family in a Family Child Care Setting /1 cr. hr./1 period (1 lec.)**

Strategies for reaching a balance between work and family in the child care setting. Includes establishing an appropriate setting, planning the daily schedule, setting boundaries, keeping a balance in your own life, and communicating with parents. Also includes your role as a liaison between family, child, and parent.

*Offered: Summer*

**CDA 271 Professionalism in Childcare /1 cr. hr./1 period (1 lec.)**

Analysis of the history and ethics of early childhood professionals. Includes defining professionalism; examining the past, present and future; exploring professional values and ethics; continuing professional growth/education; and becoming an advocate for children and their families.

*Offered: Fall/Spring/Summer*

**CDA 273 Ages and Stages: The Middle Childhood Years /1 cr. hr./1 period (1 lec.)**

Examination of the stages of growth and development during the middle childhood years (ages 6 to 12). Includes physical growth, motor development, logical thinking and language skills, and social and emotional growth. Also includes examining developmental concerns and challenges.

*Offered: Fall/Spring/Summer*

**CDA 274 Emerging Literacy /1 cr. hr./1 period (1 lec.)**

Analysis of the developmentally appropriate practices in the teaching of literacy. Includes creating the environment for young readers, working with young writers, developing a functional literacy environment, and the teacher's role in literacy.

*Offered: Spring*

**CDA 275 Transitions /1 cr. hr./1 period (1 lec.)**

Examination of the nature of transitions in the classroom. Includes defining "transitions" and using "wait time." Also includes selection of transitional activities, resources for transitions, and transitions as part of the curriculum.

*Offered: Spring*

## CHINESE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CHI 101 Elementary Chinese (Mandarin) I /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*

**CHI 102 Elementary Chinese (Mandarin) II /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s): CHI 101.*

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 culture awareness.

*Offered: Spring*

**CHI 201 Intermediate Chinese (Mandarin) I /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s): CHI 102.*

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.

*Offered: Fall*

**CHI 202 Intermediate Chinese (Mandarin) II /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s): CHI 201.*

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.

*Offered: Spring*

## COMMUNITY DEVELOPMENT ASSOCIATION

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CDE 100 Community Organizational Management and Leadership I /1 cr. hr./1 period (1 lec.)**

Exploration of basic community development skills. Includes communication, organizational management, resource and leadership. Also includes techniques to analyze the neighborhood environment and enhancements to improve the quality of life.

*Will not be offered this year*

**CDE 101 Community Organizational Management and Leadership II /1 cr. hr./1 period (1 lec.)**

Continuation of CDE 100. Includes a survey of skills necessary to research, design, develop and present a focused plan of action for meeting the needs of a neighborhood or community. Also includes strategic and action planning, environmental scanning, prioritization of needs, developing indicators of effectiveness, and presenting the plan orally and in writing.

*Will not be offered this year*

**CDE 105 Vision Portfolio /1 cr. hr./1 period (1 lec.)**

Exploration into the stages of life and what that means to each individual through the development of a portfolio. Includes the preparation of materials that indicate the educational and personal paths, achievements, and goals in the individual's vision of themselves and their community.

*Will not be offered this year*

**CDE 109 Livable Neighborhoods /.25 cr. hrs./25 periods (.25 lec.)**

Overview of the programs available to improve the quality of life in neighborhoods. Includes assessing need and priorities, tree planting and Trees for Tucson program, traffic calming, walkways, lighting, housing rehabilitation and financing improvement.

*Will not be offered this year*

**CDE 110 Neighborhood Organization /1 cr. hr./1 period (1 lec.)**

Basic organization for the development of a neighborhood association. Includes the skills and components of organization, meeting strategies, development of an information database, running effective meetings, creating by-laws, officer training, and publishing a newsletter.

*Will not be offered this year*

**CDE 111 Neighborhood Development /1 cr. hr./1 period (1 lec.)**

Basics of maintaining the neighborhood association after initial start-up. Includes community resources, soliciting support, grant writing, problem solving, working with difficult people, neighborhood self-defense, and organizing events.

*Will not be offered this year*

**CDE 112 Neighborhood Planning /1 cr. hr./1 period (1 lec.)**

Basic procedures for ensuring the future of the neighborhood association. Includes historical record keeping, inventory of assets, developing long-range plans, bringing plans into reality, evaluation, and plan revision.

*Will not be offered this year*

**CDE 113 Making a Difference in Your Neighborhood /.25 cr. hrs./25 periods (.25 lec.)**

Overview of how to find funding for your neighborhood.

*Will not be offered this year*

**CDE 115 Effective Meetings /.25-1 cr. hr./25-1 period (.25-1 lec.)**

Introduction to the nature, functions and facilitation techniques of effective meetings. Also includes roles and responsibilities of individuals and groups in a meeting setting.

*Will not be offered this year*

**CDE 120 The Nuts and Bolts of Fundraising /.25 cr. hr./25 period (.25 lec.)**

Exploration of how to raise funds for non-profit groups. Includes potential income sources, fundraising principles, major donors, solicitation techniques, and roles of agency participants. Also includes steps involved in developing a funding plan.

*Will not be offered this year*



**CDE 121 Publicity through Media / .25 cr. hr./ .25 period (.25 lec.)**

Overview of how to communicate successfully through the media. Includes the discussion of hosts, audiences, formats, what makes a news story, tips on writing effective press releases, and protocol when speaking to the media.

*Will not be offered this year*

**CDE 122 How to Become a Non-Profit Organization / .25 cr. hrs./ .25 periods (.25 lec.)**

Overview of the process on how to become a non-profit organization.

*Will not be offered this year*

**CDE 125 Basic Grant Proposal Writing / .25-1 cr. hr./ .25-1 period (.25-1 lec.)**

Introduction to the fundamentals of grant proposal writing for first time grant writing volunteers. Includes the pros and cons of grants and how to research grants.

*Will not be offered this year*

**CDE 126 Strength in Numbers: How to Get and Keep People Involved / .25 cr. hr./ .25 period (.25 lec.)**

Practical applications for community organizers and organizations with an understanding of why people get involved in community groups. Includes techniques for attracting people and keeping them involved in the group's activities.

*Will not be offered this year*

**CDE 127 Grant Reviewer Orientation / .25 cr. hr./ .25 period (.25 lec.)**

Overview of the grants process including eligibility, criteria, and sample grant reviews.

*Will not be offered this year*

**CDE 130 Dialogue Facilitation Skills / 1 cr. hr./ 1 period (1 lec.)**

Introduction to the skills necessary for facilitating public deliberation forums. Also includes techniques for reflection and public agenda setting after deliberation has occurred.

*Will not be offered this year*

**CDE 135 Neighborhood Project Planning / .25-1 cr. hr./ .25-1 period (.25-1 lec.)**

Introduction to the process of planning and implementing a Community History project. Includes techniques for soliciting community participation, developing the project idea and budget and the ethical issues of history projects.

*Will not be offered this year*

**CDE 170 Citizen's Academy / 3 cr. hrs./ 3 periods (3 lec.)**

Introduction to the law enforcement agency. Includes its role in the community and the criminal justice system. Also includes mission, values, ethics, resources, skills, and collaborations.

*Will not be offered this year*

**CDE 180 Family Communication and Resiliency Skills / 1-3 cr. hrs./ 1-3 periods (1-3 lec.)**

Exploration of interpersonal dynamics within the context of a family. Includes overview of communication styles, family structural types, leadership roles and parenting styles. Also includes techniques to assess situations within particular social environments and methods to consistently consider positive solutions to difficult challenges in day-to-day family life.

*Will not be offered this year*

**CDE 185 Crisis Intervention Strategies / 3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s): Consent of instructor.*

Introduction to crisis prevention strategies provided by the Pima County Attorney's Office, Victim Witness Program. Includes an opportunity to assess interest in volunteering for Victim Witness. Also includes evaluation of potential ability to effectively handle the types of situations volunteers encounter and their appropriateness in becoming a part of the Victim Witness Crisis Counselor Program.

*Will not be offered this year*

**CDE 186 Crisis Intervention Training and Special Populations / 3 cr. hrs./ 3 periods (3 lec.)**

Introduction to crisis intervention strategies for law enforcement officers and other response teams. Includes information on dealing with people with mental disorders, developmental disabilities, personality disorders and other special populations. Also includes a review of psychiatric medications, legal issues, and officer safety.

*Will not be offered this year*

**CDE 187 Victim Witness Crisis Intervention Training / 3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s): Consent of instructor.*

Intensive training as a crisis intervention volunteer. Includes crisis interven-

tion, communication and victimology, culture and values assessment, suicide, sexual assault, child victims, and domestic violence. Also includes responding to the needs of crime victims, witnesses, and their families.

*Information:* Course is sponsored by the Pima County Attorney's Office.

*Will not be offered this year*

**CDE 188 Neighborhood Coordinator Training / 3 cr. hrs./ 3 periods (3 lec.)**

Examination of leadership skills and asset-based community building. Includes history of leadership, principle centered learning, vision/change process, and personal leadership skills.

*Will not be offered this year*

**CDE 189 Effective Case Management / 3 cr. hrs./ 3 periods (3 lec.)**

Intensive training for effective case management aimed at personnel within the juvenile justice system. Includes an overview of the characteristics of effective case managers, communication and leadership skills, interview techniques, and evaluation. Also includes the importance of workplace environment as well as stress and time management techniques.

*Will not be offered this year*

**CDE 260 Mediation of Workplace Disputes / 3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s): Consent of instructor.*

Mediation training from the higher education perspective. Includes tools necessary for facilitating mediation, organization systems and functions, differentiation between diverse complaints, suitable approaches for facilitation, issue sensitivity, and how hierarchical structures and systems impact the negotiation and agreement process.

*Will not be offered this year*

**COMPUTER AIDED DESIGN/DRAFTING**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CAD 096 Independent Study in Preparation for Computer Aided Drafting / 1-4 cr. hrs./ 3-12 periods (3-12 lab)**

*Prerequisite(s): Consent of instructor.*

Developmental level of independent work on a special project not included in regular courses. The student is required to obtain a sponsoring instructor in this area and establish objectives, a procedure, and a method of evaluation.

*Information:* May not be used for meeting program requirements.

*Will not be offered this year*

**CAD 101 Computer Aided Drafting Fundamentals / 4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Two-dimensional computer aided and traditional drafting concepts and techniques. Includes computer aided drafting procedures and methods, electronic file management, hard copy production, freehand sketching and visualization, industry standards, scale and dimensioning, and final project.

*Information:* For individuals with no computer and/or drafting experience.

*Offered:* Fall/Spring/Summer

**CAD 102 Computer Aided Drafting Fundamentals: Review / 4 cr. hrs./ 6 periods (3 lec., 3 lab)**

*Prerequisite(s): Computer and/or drafting experience.*

Two-dimensional computer aided and traditional drafting concepts and techniques. Includes software review, computer aided drafting procedures and methods, electronic file management, hard copy production, projections, industry standards, scale, and final project.

*Information:* For individuals with computer and/or drafting experience.

*Will not be offered this year*

**CAD 104 Integrated Circuit Layout Fundamentals / 4 cr. hrs./ 6 periods (3 lec., 3 lab)**

*Prerequisite(s): TEC 100 or concurrent enrollment.*

*Co-requisite(s): CAD 114.*

Principles and concepts of integrated circuit layout. Includes basic electronics, fundamentals of integrated circuits, circuit design, electronic file management, schematic diagram, and physical layout overview.

*Offered:* Fall/Spring

**CAD 105 Manufacturing Processes I / 3 cr. hrs./ 3 periods (3 lec.)**

Properties and applications of materials. Includes production systems, production materials, ferrous and nonferrous alloys, nonmetallic materials, casting processes, powder metallurgy, and hot and cold working processes.

*Will not be offered this year*



**CAD 110 Manufacturing Processes II /3 cr. hrs./3 periods (3 lec.)**

Equipment and tooling applications. Includes measuring, gaging, metal cutting, turning and boring, drilling and reaming, milling, broaching, abrasive machining, and thread cutting and forming.

*Will not be offered this year*

**CAD 112 Mechanical Manufacturing Processes /3 cr. hrs./3 periods (3 lec.)**

Properties and applications of materials. Includes introduction to manufacturing, production and properties of common engineering materials, ferrous and nonferrous alloys, nonmetallic materials, measuring, gaging and quality control, metal cutting, turning and boring related processes, drilling and reaming, milling, and broaching.

*Will not be offered this year*

**CAD 114 Electronic Manufacturing Processes /3 cr. hrs./3 periods (3 lec.)**

Principles and concepts of printed circuit board and integrated circuit manufacturing processes. Includes printed circuit board materials, board types and fabrication, assembly processes, integrated circuit device physics, semiconductor fabrication, failure mechanisms, resistors, capacitors, diodes, and metal-oxide semiconductor (MOS) transistors.

*Offered: Fall/Spring*

**CAD 116 Electronic Print Reading /2 cr. hrs./2 periods (2 lec.)**

Principles and concepts of electronic print reading. Includes print and manufacturing terms, print fundamentals and standards, schematic and interconnection diagram drawings, cable assembly drawings, print analysis, and change paper procedures.

*Offered: Fall/Spring/Summer*

**CAD 117 Print Reading and Sketching for Manufacturing /4 cr. hrs./5 periods (3 lec., 2 lab)**

Principles and concepts of print reading and technical freehand sketching. Includes common print and manufacturing terms, print fundamentals and standards, freehand sketching applications, and print analysis.

*Offered: Fall/Spring/Summer*

**CAD 121 Fundamentals of the Construction Industry for Computer Aided Drafting /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): Concurrent enrollment in CAD 101 or 102 recommended.*  
Introduction to the construction industry. Includes overview of the construction industry, regulations, structural systems, environmental control, and bidding, estimating, and scheduling.

*Will not be offered this year*

**CAD 152 Mechanical Design and Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102.*

Basic concepts, techniques, and applications for technical drafting. Includes use of mechanical drafting fundamentals and standards, advanced Computer Aided Drafting (CAD) applications, CAD procedures and methods, and hard copy techniques and procedures.

*Offered: Fall/Spring/Summer*

**CAD 153 Electro-Mechanical Design and Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102.*

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.

*Offered: Fall/Spring*

**CAD 154 Integrated Circuit Layout Design I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 104, TEC 100.*

Principles and concepts of integrated circuit layout. Includes basic electronics, fundamentals of integrated circuits, manufacturing process, circuit design, UNIX operating system, schematic diagram, and physical layout overview.

*Offered: Fall/Spring*

**CAD 155 Residential Design and Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102.*

Beginning level Computer Aided Design and Drafting (CADD) of single family detached dwellings. Includes residential CADD skills, site, foundation, floor, and roof framing, mechanical, plumbing, and electrical plans, building and wall sections, building elevations, and working drawing coordination.

*Offered: Fall/Spring/Summer*

**CAD 156 Commercial Design and Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102.*

Beginning level Computer Aided Design and Drafting (CADD) of a commercial building. Includes commercial CADD skills, site, foundation, floor, roof framing, reflected ceiling, mechanical, plumbing, and electrical plans, building and wall sections elevations, and working drawing coordination.

*Offered: Fall/Spring/Summer*

**CAD 157 Civil Design and Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102.*

Beginning level Computer Aided Design and Drafting (CADD) specific to sites for construction of buildings, roads, and utilities. Includes introduction to civil drafting technology, fundamentals of surveying, location and direction, mapping, legal descriptions and plot plans, contour lines, profiles, road layout, earthwork, and Geographic Information Systems (GIS).

*Offered: Fall/Spring/Summer*

**CAD 158 Interior Design and Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102.*

Computer Aided Design/Drafting (CADD) applications specific to the interior design professions. Includes review of CADD skills, block functions, Internet applications, three-dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

*Offered: Fall/Spring/Summer*

**CAD 159 Landscape Design and Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102.*

Computer Aided Design/Drafting (CADD) applications specific to landscape design professions. Includes review of CADD skills, block functions, Internet applications, three-dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

*Offered: Fall/Spring/Summer*

**CAD 170 Three-Dimensional Modeling Techniques /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): CAD 101 or 102 or one year of CAD experience and consent of instructor.*

Advanced Computer Aided Drafting (CAD) three-dimensional concepts, techniques, and problems. Includes review of fundamentals and standards, three dimensional wire frame, surface, and solid modeling applications, and hard copy techniques and procedures.

*Will not be offered this year*

**CAD 172 Geometric Dimensioning and Tolerancing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): CAD 101 or 102 or equivalent drafting experience.*

Establishing controls on sizes and allowances of mechanical parts. Includes definitions and rules, form tolerances, datums, orientation controls, location controls, runout, and profile.

*Offered: Fall/Spring*

**CAD 182 Three-Dimensional Mechanical Design and Drafting I /4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite: CAD 101 or 102 or one year of CAD experience and consent of instructor.*

Beginning level Computer Aided Drafting (CAD) three-dimensional (3-D) mechanical concepts, techniques, and problems. Includes 3-D wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered: Summer*

**CAD 185 Three-dimensional Residential Design and Drafting I /4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite: CAD 101 or 102 or one year of CAD experience and consent of instructor.*

Beginning level Computer Aided Drafting (CAD) three-dimensional (3-D) residential concepts, techniques, and problems. Includes 3-D wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered: Summer*

**CAD 186 Three-Dimensional Commercial Design and Drafting I /4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite: CAD 101 or 102 or one year of CAD experience and consent of instructor.*

Beginning level Computer Aided Drafting (CAD) three-dimensional (3-D) commercial concepts, techniques, and problems. Includes 3-D wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered: Summer*

**CAD 187 Three-dimensional Civil Design and Drafting I / 4 cr. hrs./ 6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 101 or 102 or one year of CAD experience and consent of instructor.

Beginning level Computer Aided Drafting (CAD) three-dimensional (3-D) civil concepts, techniques, and problems. Includes 3-D wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer

**CAD 188 Three-dimensional Interior Design and Drafting I / 4n cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 101 or 102 or one year of CAD experience and consent of instructor.

Beginning level Computer Aided Drafting (CAD) three-dimensional (3-D) interior design concepts, techniques, and problems. Includes 3-D wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer

**CAD 189 Three-dimensional Landscape Design and Drafting I / 4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 101 or 102 or one year of CAD experience and consent of instructor.

Beginning level Computer Aided Drafting (CAD) three-dimensional (3-D) landscape design concepts, techniques, and problems. Includes 3-D wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer

**CAD 199 Co-op Related Class in CAD /1 cr. hr./1 period (1 lec.)**

*Co-requisite(s):* Concurrent enrollment in CAD 199WK Co-op Work.

Introduction to Cooperative Education in CAD 199 Co-op Related Class. 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.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**CAD 199WK Co-op Work in CAD /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Co-requisite(s):* Concurrent enrollment in CAD 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*Will not be offered this year*

**CAD 202 Mechanical Design and Drafting II / 4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* CAD 152.

*Recommended:* CAD 172 or concurrent enrollment.

Continuation of CAD 152. Includes review of mechanical design fundamentals and standards, advanced Computer Aided Drafting (CAD) applications, advanced three dimensional (3D) solid modeling techniques and hard copy techniques and procedures.

*Offered:* Fall/Spring/Summer

**CAD 203 Electro-Mechanical Design and Drafting II / 4 cr. hrs./ 6 periods (3 lec., 3 lab)**

*Prerequisite(s):* CAD 153, TEC 100.

Continuation of CAD 153. Includes fundamentals and standards, electronic symbol library, electronic component, schematic diagram application, and printed circuit board design, electronics design theory, Computer Aided Drafting (CAD) procedures and methods, and hard copy techniques and procedures.

*Offered:* Fall/Spring

**CAD 204 Integrated Circuit Layout Design II / 4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* CAD 154.

Principles and concepts of analog layout techniques. Includes metal-oxide semiconductor (MOS) layout, floor planning, resistors, capacitors, bipolar devices, diodes, engineering concerns, layout concerns, and layout versus schematic verification (LVS).

*Offered:* Fall/Spring

**CAD 205 Residential Design and Drafting II / 4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* CAD 155.

Continuation of CAD 155 at the intermediate level. Includes intermediate level CADD skills, intermediate level project programming, intermediate level site, foundation, floor, roof framing, mechanical, plumbing, and electrical plans, building and wall sections, building elevations, working draw-

ing coordination, special construction applications, and 3D modeling.

*Offered:* Fall/Spring/Summer

**CAD 206 Commercial Design and Drafting II / 4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* CAD 156.

Continuation of CAD 156 at the intermediate level. Includes intermediate commercial CADD 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.

*Offered:* Fall/Spring/Summer

**CAD 207 Civil Design and Drafting II / 4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* CAD 157.

Continuation of CAD 157 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).

*Offered:* Fall/Spring/Summer

**CAD 208 Interior Design and Drafting II / 4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 158

Continuation of CAD 158 at the intermediate level. Includes intermediate level interior design CADD skills, block functions, Internet applications, three dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

*Offered:* Fall/Spring/Summer

**CAD 209 Landscape Design and Drafting II / 4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 159.

Continuation of CAD 159 at the intermediate level. Includes intermediate level design CADD skills, block functions for landscape, Internet applications for landscape, three-dimensional design for landscape, presentation drawings for landscape, landscape systems, working drawings for landscape, and working drawing coordination for landscape.

*Offered:* Fall/Spring/Summer

**CAD 220 Advanced Three-Dimensional Modeling Techniques / 4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* CAD 170.

Concepts and procedures for designing, modeling, and mass property analysis of mechanical/electro-mechanical models. Includes solid modeling and parametric design fundamentals and standards, design applications, mass property calculations, and hard copy techniques and procedures.

*Will not be offered this year*

**CAD 232 Three-Dimensional Mechanical Design and Drafting II / 4 cr. hrs./6 periods (3 lec./3lab)**

*Prerequisite(s):* CAD 182, or consent of instructor.

Continuation of CAD 182 at the intermediate level. Includes three-dimensional (3-D) mechanical wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer

**CAD 235 Three-Dimensional Residential Design and Drafting II / 4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 185, or consent of instructor.

Continuation of CAD 185 at the intermediate level. Includes three-dimensional (3-D) wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer

**CAD 236 Three-Dimensional Commercial Design and Drafting II / 4 cr. hrs./6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 186, or consent of instructor.

Continuation of CAD 186 at the intermediate level. Includes three-dimensional (3-D) commercial wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer

**CAD 237 Three-Dimensional Civil Design and Drafting II / 4 cr. hrs. / 6 periods (3 lec./3 lab)**

*Prerequisite:* CAD 187, or consent of instructor.

Continuation of CAD 187 at the intermediate level. Includes three-dimensional (3-D) civil wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer

**CAD 238 Three-Dimensional Interior Design and Drafting II / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite:* CAD 188, or consent of instructor.

Continuation of CAD 188 at the intermediate level. Includes three-dimensional (3-D) interior design wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 239 Three-Dimensional Landscape Design and Drafting II / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite:* CAD 189, or consent of instructor.

Continuation of CAD 189 at the intermediate level. Includes three-dimensional (3-D) landscape design wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 252 Mechanical Design and Drafting III / 4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* CAD 202.

Continuation of CAD 202. Includes geometric dimensioning and tolerancing fundamentals and standards, parametric modeling techniques, geometric dimensioning and tolerancing applications, and hard copy techniques and procedures.

*Offered:* Fall/Spring/Summer**CAD 253 Electro-Mechanical Design and Drafting III / 4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* CAD 203.

Continuation of CAD 203. Includes concepts, techniques, and applications for electro-mechanical design and product development. Also includes electro-mechanical design fundamentals and standards, advanced electronic symbol library, design applications, mechanical assembly techniques, and hard copy techniques and procedures.

*Offered:* Fall/Spring**CAD 254 Integrated Circuit Layout Design III / 4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* CAD 204.

Advanced principles and concepts of integrated circuit layout design. Includes advanced layout techniques, advanced cell construction techniques, advanced UNIX operating system use, advanced design rules check (DRC) techniques, and advanced layout versus schematic (LVS) check techniques.

*Offered:* Fall/Spring**CAD 255 Residential Design and Drafting III / 4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* CAD 205.

Continuation of CAD 205 at the advanced level. Includes advanced level CADD skills, advanced level 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.

*Offered:* Fall/Spring/Summer**CAD 256 Commercial Design and Drafting III / 4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* CAD 206.

Continuation of CAD 206 at the advanced level. Includes advanced level CADD skills, advanced level commercial project programming, advanced level site, foundation, floor, roof framing, mechanical plumbing, and electrical plans, building and wall sections, building elevations, working drawing coordination, special construction applications, model energy code, and 3D modeling.

*Offered:* Fall/Spring/Summer**CAD 257 Civil Design and Drafting III / 4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* CAD 207.

Continuation of CAD 207 at the advanced level. Includes advanced civil drafting technology, advanced surveying, advanced location and direction, advanced mapping, advanced legal descriptions and plot plans, advanced contour lines, advanced profiles, advanced road layout, advanced earthwork, and advanced Geographic Information Systems (GIS).

*Offered:* Fall/Spring/Summer**CAD 258 Interior Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 208.

Continuation of CAD 208 at the advanced level. Includes advanced level interior design CADD skills, block functions, Internet applications, three dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

*Offered:* Fall/Spring/Summer**CAD 259 Landscape Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 209.

Continuation of CAD 209 at the advanced level. Includes advanced level design CADD skills, block functions for landscape, Internet applications for landscape, three-dimensional design for landscape, presentation drawings for landscape, landscape systems, working drawings for landscape, and working drawing coordination for landscape.

*Offered:* Fall/Spring/Summer**CAD 280 Computer Aided Design and Drafting Portfolio / 1 cr. hr./1 period (1 lec.)***Prerequisite(s):* CAD 202, or 203, or 204, or 205, or 206, or 207.

Identification of portfolio content. Includes project parameters, portfolio presentation, portfolio development, and critique.

*Offered:* Fall/Spring/Summer**CAD 282 Three-Dimensional Mechanical Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 232, or consent of instructor.

Continuation of CAD 232 at the advanced level. Includes three-dimensional (3-D) mechanical wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 285 Three-Dimensional Residential Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 235, or consent of instructor.

Continuation of CAD 235 at the advanced level. Includes three-dimensional (3-D) residential wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 286 Three-Dimensional Commercial Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 236, or consent of instructor.

Continuation of CAD 236 at the advanced level. Includes three-dimensional (3-D) commercial wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 287 Three-Dimensional Civil Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 237, or consent of instructor.

Continuation of CAD 237 at the advanced level. Includes three-dimensional (3-D) civil wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 288 Three-Dimensional Interior Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 238, or consent of instructor.

Continuation of CAD 238 at the advanced level. Includes three-dimensional (3-D) interior design wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 289 Three-Dimensional Landscape Design and Drafting III / 4 cr. hrs./6 periods (3 lec./3 lab)***Prerequisite(s):* CAD 239, or consent of instructor.

Continuation of CAD 239 at the advanced level. Includes three-dimensional (3-D) landscape design wire frame, surface, and solid modeling applications, shading and rendering of 3-D models, and hard copy techniques and procedures.

*Offered:* Summer**CAD 296 Independent Study in Computer Aided Drafting / 1-4 cr. hrs./3-12 periods (3-12 lab)***Prerequisite(s):* Consent of instructor.

Independent work on a special project not included in regular courses. The student is required to obtain a sponsoring instructor in this area and establish objectives, a method of procedure and a method of evaluation.

*Offered:* Fall/Spring**CAD 297 Computer-Aided Design/Drafting Seminar / .25-4 cr. hrs./ .25-16 periods (.25-4 lec., 0-12 lab)***Prerequisite(s):* Consent of instructor.

Computer-Aided Design/Drafting job-related training. Includes timely and/or limited interest information.

*Information:* May be taken four times for a maximum of sixteen credit hours.*Will not be offered this year*



**CAD 299 Co-op Related Class in CAD /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in CAD 299WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**CAD 299WK Co-op Work in CAD /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in CAD 299 Co-op Related Class.

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Will not be offered this year*

**COMPUTER INFORMATION SYSTEMS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CIS 100 Introduction to Computers /3 cr. hrs./3 periods (3 lec.)**

Introduction to computer information systems. Includes overview and concepts of computer components, operating systems, software applications, databases, e-commerce, multi-media, security, application of information technology, networking, privacy, globalization, and ethics. Also includes use, history, structure and research techniques on the Internet.

*Offered:* Fall/Spring/Summer

**CIS 101 Survey of Information Technology Careers /1 cr. hr./1 period (1 lec.)**

Overview to the concepts and opportunities of information technology careers. Includes information technology in the organizational structure, information technology careers, and job market opportunities in the information technology industry.

*Offered:* Fall/Spring/Summer

**CIS 103 Microsoft Windows XP Professional Administration /4 cr. hrs./4 periods (4 lec.)**

Knowledge and skills necessary to perform day-to-day administration tasks in a Microsoft Windows XP based network. Includes windows network administration, windows operating system, user and group accounts, network resource security, print server administration, resource and event audits, and resource monitoring.

*Information:* Preparation for Microsoft certification examination.

*Offered:* Fall/Spring/Summer

**CIS 119 Network Essentials /3 cr. hrs./3 periods (3 lec.)**

*Recommended:* CIS 103.

Comprehensive introduction to computer networks and data communications. Includes computer networks and services, transmission media and connection, network models, popular protocol suites, other network issues, and network operating systems.

*Offered:* Fall/Spring/Summer

**CIS 121 Web Publishing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* CIS 100 or consent of Instructor.

*Recommended:* Consult instructor for alternative prerequisite(s).

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.

*Offered:* Fall/Spring/Summer

**CIS 129 Programming and Problem Solving I /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* MAT 122 or concurrent enrollment.

Introduction to personal and business computer systems. Includes terminology, fundamental concepts of information systems, hardware, software, operating systems with emphasis on computer programming and problem solving. Also includes advantages/disadvantages of different language types, source code versus executable code, data structures and data representation, natural and artificial language statements, syntax, semantics, expressions, control structures and procedural abstraction. Also includes concepts of problem solving techniques, creating test data, program debugging and program termination, solving simple problems, and the use of BASIC programming language, programming environment and hardware, and using computers and other methods to complete assignments.

*Offered:* Fall/Spring/Summer

**CIS 131 Programming and Problem Solving II /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* CIS 129.

Continuation of CIS 129. Includes developing software using multi-dimensional arrays with structured elements, file handling of both text and binary typed texts, sorting and searching models. Also includes requirements for planning, good coding practices, documentation, and applications to both numerical and business oriented problems.

*Information:* Programming assignments will use the C++ language.

*Offered:* Fall/Spring/Summer

**CIS 136 Microcomputer Components /3 cr. hrs./3 periods (3 lec.)**

An overview of the primary components of common microcomputer systems. Includes system components, system 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.)**

*Recommended:* CIS 100

Principles, tools and history of the UNIX and Linux operating systems. Includes utilities, file structure, text editors, tools, documentation, and networking. Also includes bash or shell use and script programming.

*Offered:* Fall/Spring/Summer

**CIS 139 Beginning Visual BASIC Programming /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* CIS 129.

Introduction to Visual and event-driven programming using Visual Basic for 32-bit Windows and NT operating systems. Includes design considerations, custom controls, procedures in Code Module, menu editor, keyboard and mouse commands, error handling, report writing, sequential file processing, relational database processing and maintenance program using Data Control and bound controls, prepare programs for final distribution.

*Offered:* Fall/Spring/Summer

**CIS 141 Introduction to VB.NET /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite:* CIS 129

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

*Offered:* Fall/Spring

**CIS 162 Database Design and Development /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite:* CSA 170 or Permission of Instructor.

*Corequisite:* CIS 182

Introduction to database concepts and terminology. Includes file systems and databases, the relational database model, entity relationship modeling, normalization, database design, distributed database management systems, and other systems.

*Offered:* Fall/Spring

**CIS 170 Cisco I: Networking Fundamentals /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* CIS 136.

*Recommended:* Consult instructor for alternative prerequisite(s).

Emphasis on the OSI model and industry standards. Includes network topologies, IP addressing, subnet masks, basic network design and cable installation. Also includes preparation for Cisco certification examination.

*Offered:* Fall/Spring

**CIS 171 Cisco II: Networking Router Technologies /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* CIS 170.

*Recommended:* Consult instructor for alternative prerequisite(s).

Knowledge of skills to install, configure, customize, maintain the troubleshoot Cisco routers and components. Includes preparation for Cisco certification examination.

*Offered:* Fall/Spring

**CIS 172 Cisco III: Advanced Routing and Switching /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* CIS 171.

*Recommended:* Consult instructor for alternative prerequisite(s).

Development of knowledge and skills to configure advanced routing protocols, Local Area Networks (LANs), and LAN switching. Includes design and management of advanced networks and preparation for Cisco certification examination.

*Offered:* Fall/Spring



**CIS 173 Cisco IV: Project Based Learning /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* CIS 172.

*Recommended:* Consult instructor for alternative prerequisite(s).

Design and configuration of advanced wide area network (WAN) projects using Cisco IOS command set. Includes preparation for Cisco certification examination.

*Offered:* Fall/Spring

**CIS 174 Introduction to Oracle Database /3 cr. hrs./3 periods (3 lec.)**

*Corequisite:* CIS 162

Introduction to the Oracle relational database management system. Includes creating and modifying database tables, using queries, introduction to Procedure Language/Structured Query Language (PL/SQL), and creating forms, reports, and an integrated database application.

*Offered:* Spring

**CIS 180 Introduction to SQL and PL/SQL /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* CIS 106 and 129.

*Recommended:* Experience using a GUI interface. Consult instructor for alternative prerequisite(s).

Extensive introduction to data-server technology covering concepts of both relational and objects relational databases and SQL and PL/SQL programming language. Includes creation and maintenance of database objects, storage, retrieval, and manipulation of data. Also includes creating PL/SQL blocks of application code that can be shared by multiple forms, reports, and data management applications.

*Offered:* Fall/Spring

**CIS 181 Introduction to Oracle Designer /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* CIS 106.

*Recommended:* Consult instructor for alternative prerequisite(s).

Task-based essential skills for using Oracle Designer to develop application systems. Includes recording business requirements, refining the data and application design, and generating database objects and simple Oracle Developer and Web Server applications, and a single, small-scale Oracle Designer project. Also includes the flow of information through the Repository, and the default behavior of the Oracle Designer toolset.

*Offered:* Fall/Spring

**CIS 182 Introduction to ANSI SQL /3 cr. hrs./3 periods (3 lec.)**

*Corequisite:* CIS 162

Introduction to the American National Standards Institute (ANSI) Structured Query Language (SQL). Includes relational databases, SQL basics and nomenclature, simple queries, search conditions and sorting, single table query processing and unions, simple and multi-table joins, summary queries using columns, group queries, and subqueries and query expressions. Also includes adding, deleting, and modifying data from the database, referential integrity and constraints, creating databases, creating, removing and modifying tables, and defining constraints.

*Offered:* Fall/Spring

**CIS 183 Introduction to Extensible Markup Language (XML) / 2 cr. hrs./2 periods (2 lec.)**

*Recommended:* Coursework or experience with Hypertext Markup Language (HTML) is strongly recommended.

Introduction to Extensible Markup Language (XML) which provides a format for describing data and enable the separation of presentation from data. Includes creating an XML document, binding XML data, document type definition, namespace and schemas, formatting with Cascading Style Sheets, and introduction to Extensible Stylesheet Language Transformation (XSLT).

*Offered:* Fall/Spring

**CIS 184 Introduction to SQL Server /3 cr. hrs./3 periods (3 lec.)**

*Corequisite:* CIS 162

Introduction to Microsoft Structured Query Language (SQL) Server relational database management system. Includes fundamentals of SQL server architecture, relational database components, administration tools, and communication, server, and logical database components.

*Offered:* Fall/Spring

**CIS 187 Data Processing Projects I /1-3 cr. hrs./3-9 periods (3-9 lab)**

*Prerequisite(s):* Completion of four courses in the Computer Science program or consent of instructor.

Provides practical work experience with academic study. Includes problem solving, job site interpersonal relations, and directed independent studies of computer-related topic. Also includes lab exercises involving operating system tasks, word processing, spreadsheet, electronic mail, and the Internet.

*Offered:* Fall/Spring/Summer

**CIS 199 Co-op Related Class in CIS /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in CIS 199WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring/Summer

**CIS 199WK Co-op Work in CIS /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in CIS 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring/Summer

**CIS 220 Novell NetWare Networking and Administration /4 cr. hrs./ 4 periods (4 lec.)**

*Prerequisite(s):* CIS 119.

*Recommended:* Consult instructor for alternative prerequisite(s).

Administration of microcomputer networks using Novell NetWare. Includes networking fundamentals, computer networking protocols, NetWare server installation and configuration, maintenance, operation and administration.

*Offered:* Fall/Spring/Summer

**CIS 221 Microsoft Windows Server /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* CIS 103 or consent of instructor.

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.

*Information:* Preparation for Microsoft certification examination.

*Offered:* Fall/Spring/Summer

**CIS 222 Implementing Windows Network Infrastructure /4 cr. hrs./ 4 periods (4 lec.)**

*Prerequisite(s):* CIS 221 or consent of instructor.

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.

*Information:* Preparation for Microsoft certification examination.

*Offered:* Fall/Spring/Summer

**CIS 223 Implementing Windows Directory Services /4 cr. hrs./ 4 periods (4 lec.)**

*Prerequisite(s):* CIS 221 or consent of instructor.

Knowledge and skills to install, configure, and administer Microsoft Windows ActiveDirectory directory services. Includes active directory structure, ActiveDirectory directory services, domain name system (DNS), group policy implementation, user accounts, software development, group policy security, and administration of ActiveDirectory objects.

*Offered:* Fall/Spring/Summer

**CIS 224 Designing Windows Network Security /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* CIS 223 or consent of instructor.

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.

*Information:* Preparation for Microsoft certification examination.

*Offered:* Fall/Spring/Summer

**CIS 225 Linux (UNIX) System and Network Administration /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* CIS 137 or consent of instructor.

Operations and network administration of the Linux (UNIX) system. Includes background review, Linux installation and configuration, installing software packages, network file services (NFS) configuration, Domain Name System (DNS) usage, and server installation and management. Also includes the SAMBA file and printer server, the Apache Web server, File Transfer Protocol (FTP), and current topics related to the Linux operating system and its administration.

*Offered:* Fall/Spring/Summer

**CIS 226 Advanced Linux Networking /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* CIS 225.

Advanced concepts in Linux and UNIX networking. Includes NFS, LDAP, firewalls, security and user administration.

*Offered:* Fall/Spring/Summer

**CIS 231 Programming Fundamentals /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): CIS 100, MAT 174.*

Introduction to problem solving using structured and object-oriented programming techniques in the JAVA Programming Language. Includes basic structure and mechanisms required to compile and run JAVA programs, data types, language syntax, arithmetic operations, repetition and control structures, input/output and using files and arrays. Also includes introduction and comparison of object-oriented and procedural programming, abstraction and encapsulation, tokenizing, threads, serialization, Swing Gui objects, event handling, and applets.

*Offered: Fall/Spring/Summer***CIS 239 Advanced Programming in Visual BASIC /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): CIS 139 or consent of instructor.*

Advanced event-driven and object-oriented programming in Visual BASIC for 32-bit Windows or NT. Includes Relational Database programming using object-oriented approach; Data Controls; ADO and DAO code; MDI; API functions; INI and Registry files; report writing; OLE Automation, creation of Active X Controls; collections; writing context sensitive help; Active Server Pages; Client/Server using ADO, RDC, RDO, and ODBC; Packaging and Deployment application.

*Offered: Fall/Spring/Summer***CIS 241 Advanced Visual Basic.NET Programming /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): CIS 141*

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 ASP.NET, and introduction and advanced VB.NET applications.

*Offered: Fall/Spring***CIS 250 Introduction to Assembly Language /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): CIS 131.**Recommendation: Consult instructor for alternative prerequisite(s).*

Beginning 80x86 assembly language programming. Includes various number systems, machine organization and different addressing methods. Also includes array processing, indexing, sorting, stack parameter passing, internal and external procedures, string functions, data packing, logical and bit-level operations, DOS and BIOS interrupts, macros, and file I/O.

*Offered: Fall/Spring/Summer***CIS 252 SQL Server Programming with Transact SQL /4 cr. hrs./4 periods (4 lec.)***Corequisite: CIS 254**Recommendation: Required understanding of programming basics such as variables, data types and procedural programming.*

A complete introduction to Transact Structured Query Language (SQL). Includes SQL server overview, programming SQL server, creating and managing databases, creating data types and tables, implementing data integrity and planning, creating and maintaining indexes. Also includes implementing views, stored procedures, user-defined functions and triggers, programming across multiple servers, optimizing query performance, analyzing queries, and managing transactions and locks.

*Offered: Fall/Spring***CIS 254 SQL Server Administration /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): CIS 162.*

Installation and configuration of the Microsoft SQL Server database management system. Includes skills to administer and troubleshoot the system.

*Offered: Fall/Spring/Summer***CIS 255 Database Administration with Oracle /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): CIS 162, CIS 174.*

Implementation and administration of an Oracle database management system. Includes Oracle architecture overview, database administrator tools, creating an Oracle instance, data dictionary views and control files, redo log files and diagnostic files, and storage concepts and settings. Also includes table management, index management, data integrity constraints, users and resource control, and database roles.

*Offered: Spring***CIS 265 The C Programming Language /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): Concurrent enrollment in CIS 250.*

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.

*Offered: Fall/Spring/Summer***CIS 266 CGI Programming with PERL /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): CIS 121 and 265 or consent of instructor.*

Development of CGI scripts using Perl. Includes producing efficient and

effective scripts. Also includes creating interactive Web pages using forms, post processing, CGI graphics, and persistent cookies.

*Offered: Fall/Spring/Summer***CIS 269 Data Structures /5 cr. hrs./5 periods (5 lec.)***Prerequisite(s): CIS 265.*

Advanced topics in computer science and programming in C. Includes software design and development, testing and validation, and the algorithmic process. Also includes dynamic allocation, advanced sort and search algorithms, recursion, stacks, queues, linked lists, trees, hash tables, and graphs.

*Offered: Fall/Spring/Summer***CIS 272 Advanced Networking Concepts /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): CIS 119 and 136 or consent of instructor.*

Advanced networking concepts and technologies applied to Local and Wide Area networks. Includes topology and standards, internetworking devices, such as routers, hubs and bridges, and network design and layout.

*Offered: Fall/Spring/Summer***CIS 273 Advanced Web Development /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): CIS 121 or consent of instructor.*

Advanced Web development including design and implementation of database Web application. Includes use of HTML, scripting languages such as vbScript, JavaScript, or CGI PERL, client and server scripting, active server pages, Java Applets, Active X components, database usage, debugging and deployment of a Web application. Also includes discussion of various database types.

*Offered: Fall/Spring/Summer***CIS 278 C++ and Object-Oriented Programming /5 cr. hrs./5 periods (5 lec.)***Prerequisite(s): CIS 265 or consent of instructor.*

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.

*Offered: Fall/Spring/Summer***CIS 279 Java Programming /5 cr. hrs./5 periods (5 lec.)***Prerequisite(s): CIS 265.*

Introduction to the Java programming language. Includes writing stand-alone programs with use of buttons, scrollbars, menus, check boxes, and other features. Also includes fundamentals of sending both data and programs, such as Applets, over the Internet.

*Offered: Fall/Spring/Summer***CIS 280 Systems Analysis and Design: Concepts and Tools /5 cr. hrs./5 periods (5 lec.)***Prerequisite(s): CIS 131 or concurrent enrollment in CIS 162.*

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.

*Offered: Fall/Spring/Summer***CIS 281 Systems Analysis and Design: Applications /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s): CIS 280.*

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.

*Offered: Fall/Spring/Summer***CIS 282 Database Programming with Visual Basic /4 cr. hrs./4 periods (4 lec.)***Prerequisite: CIS 162*

Programming OLE DB data compliant data sources such as SQL Server and Oracle using Visual Basic and the Active-X Data Object (ADO.NET). Includes getting started, creating connections, data commands and the DataReader, the DataAdapter, transaction processing in ADO.NET, and the DataSet. Also includes the DataView, editing and updating data, using ADO.NET in Windows forms and Web forms, and using the XML designer.

*Offered: Fall/Spring/Summer***CIS 285 Oracle Programming with PL/SQL /4 cr. hrs./4 periods (4 lec.)***Prerequisite: CIS 162, CIS 174, CIS 182**Corequisite: CIS 255*

Introduction to Oracle programming with Procedure Language/Structured Query Language (PL/SQL). Includes data handling, processing, proce-

dures, functions, unit dependencies, triggers, dynamic SQL and object technology, and performance tuning. Error management and exception handling are also presented.

*Offered: Spring*

**CIS 286 Advanced Java Topics /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s): CIS 279 or equivalent knowledge of Java.*

Advanced topics in the Java programming language. Includes professional Java programming concepts, networking, interface with other programming languages, packaging programs and data into files, thread creation and execution, and specialized topics.

*Offered: Fall/Spring/Summer*

**CIS 287 Data Processing Projects II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): Consent of instructor.*

Analysis and solution of a computer problem related to business. Includes choice of a computer language, structured programming techniques, setting priorities, and development and testing of procedures. Also includes methods of documentation, enhancement projection, and making a formal presentation.

*Offered: Fall/Spring/Summer*

**CIS 299 Co-op Related Class in CIS /1 cr. hr./1 period (1 lec.)**

*Corequisite(s): Concurrent enrollment in CIS 299WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered: Fall/Spring/Summer*

**CIS 299WK Co-op Work in CIS /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s): Concurrent enrollment in 299 Co-op Related Class.*

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered: Fall/Spring/Summer*

## COMPUTER SOFTWARE APPLICATIONS

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CSA 089 Beginning Computer Skills /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Beginning approach to operating a computer. Includes basic computer skills, computer terminology, Windows use, handling files, and word processing (WordPad).

*Offered: Fall/Spring/Summer*

**CSA 100 Computer Literacy /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Overview of computer applications and functions. Includes historical significance of the computer, components of a computer system, spreadsheet, database, and word processing use within a workplace. Also includes computer networks for communication and information.

*Information:* CSA 100 meets occupational general education computer and information literacy requirements.

*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, components of a computer system, spreadsheet, database, and word processing use within a workplace. Also includes advanced office software, office networking, and computer networks for communication and information.

*Offered: Fall/Spring/Summer*

**CSA 107 Microcomputer Software/Hardware Topics /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): CSA 101, 182.*

Overview of microcomputer operating procedures. Includes software, hardware, and communication networks.

*Offered: Fall/Spring/Summer*

**CSA 108 Software Skills Update /3 cr. hrs./4 periods (2 lec., 2 lab)**

Techniques and procedures using current equipment and software. Includes file creation, data manipulation, calculations, editing, and printing.

*Information:* May be taken four times for a maximum of twelve credit hours.

*Offered: Fall/Spring/Summer*

**CSA 110 Spreadsheets: Microsoft Excel /3 cr. hrs./4 periods (2 lec., 2 lab)**

Fundamentals of Microsoft Excel. Includes creating, saving, editing, and printing spreadsheets, creating and using ranges, using date and time functions, viewing and editing worksheets, using multiple worksheets, protecting the date and time functions, creating multiple views, using, creating, maintaining, sorting, and finding information in a list, creating, using and enhancing a chart. Also includes creating complex formulas, customizing work area, creating pivot tables, linking files, consolidating data, and recording macros.

*Offered: Fall/Spring/Summer*

**CSA 110A Spreadsheets: Microsoft Excel Module A /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Microsoft Excel at the beginning level. Includes creating, saving, editing, and printing spreadsheets.

*Information:* CSA 110A, 110B, and 110C together constitute CSA 110.

*Offered: Fall/Spring/Summer*

**CSA 110B Spreadsheets: Microsoft Excel Module B /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Microsoft Excel at the intermediate level. Includes creating and using ranges, using date and time functions, viewing and editing worksheets, using multiple worksheets, protecting the date and time functions, viewing and editing worksheets. Also includes using multiple worksheets, creating multiple views, using, creating, maintaining, sorting, and finding information in a list, and creating, using and enhancing a chart.

*Information:* CSA 110A, 110B, and 110C together constitute CSA 110.

*Offered: Fall/Spring/Summer*

**CSA 110C Spreadsheets: Microsoft Excel Module C /1 cr. hr./1.32 periods (.66 lec., .66 lab)**

Microsoft Excel at the advanced level. Includes creating complex formulas, customizing work area, creating pivot tables, linking files, consolidating data, and recording macros.

*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 concepts using Microsoft Word. Includes creating and editing documents, and using character and paragraph formatting, tables, styles, templates, and macros, merge, multiple-columnar formats, Internet basics, creating and using advanced styles, templates, and forms, working with graphics in documents, working with large documents, determining document layout, and sharing documents.

*Offered: Fall/Spring/Summer*

**CSA 120A Word Processing: Word Module A /1 cr. hr./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.

*Information:* CSA 120A, 120B, and 120C together constitute CSA 120.

*Offered: Fall/Spring/Summer*

**CSA 120B Word Processing: Word Module B /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Microsoft Word at an intermediate level. Includes file management, advanced page setup, tables, AutoText, merging, and templates and wizards.

*Information:* CSA 120A, 120B, and 120C together constitute CSA 120.

*Offered: Fall/Spring/Summer*

**CSA 120C Word Processing: Word Module C /1 cr. hr./1.32 periods (.66 lec., .66 lab)**

Microsoft Word at an advanced level. Includes macros, templates, styles, table of content, graphics, and customizing Word.

*Information:* CSA 120A, 120B, and 120C together constitute CSA 120.

*Offered: Fall/Spring/Summer*

**CSA 125 Word Processing: WordPerfect /3 cr. hrs./4 periods (2 lec., 2 lab)**

Applications of WordPerfect software. Includes an introduction to Windows, and using the basic, intermediate, and advanced capabilities of WordPerfect for Windows software to prepare a variety of documents.

*Will not be offered this year*

**CSA 125A Word Processing: WordPerfect Module A /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Corel WordPerfect at the beginning level. Includes using such features as basic editing, enhancing text, using search and replace, formatting and working with multipage documents.

*Information:* CSA 125A, 125B, and 125C together constitute CSA 125.

*Will not be offered this year*



**CSA 125B Word Processing: WordPerfect Module B /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Corel WordPerfect at the intermediate level. Includes managing files, advanced page setup, columns, tables, merging, address book, sorting, and Table of Contents.

Information: CSA 125A, 125B, and 125C together constitute CSA 125.

*Will not be offered this year*

**CSA 125C Word Processing: WordPerfect Module C /1 cr. hr./1.32 periods (.66 lec., .66 lab)**

Corel WordPerfect at the advanced level. Includes graphics, styles, macros, templates, drawing, TextArt, and charting.

Information: CSA 125A, 125B, and 125C together constitute CSA 125.

*Will not be offered this year*

**CSA 130 PowerPoint /3 cr. hrs./4 periods (2 lec., 2 lab)**

Fundamentals of Microsoft PowerPoint. Includes 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. Also includes animation, video, sound, creating action buttons, connecting to the Internet, and running a slide show.

*Offered: Fall/Spring/Summer*

**CSA 130A PowerPoint: Module A /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Microsoft PowerPoint at the beginning level. Includes introduction to PowerPoint for Windows, creating a test presentation, enhancing text, drawing and creating objects and lines, managing your presentation, and notes and handouts.

Information: CSA 130A, 130B, and 130C together constitute CSA 130.

*Offered: Fall/Spring/Summer*

**CSA 130B PowerPoint: Module B /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Microsoft PowerPoint at the intermediate level. Includes coloring and shading tools, pictures and Clip art, drawing features, appearance, and pictures and slides.

Information: CSA 130A, 130B, and 130C together constitute CSA 130.

*Offered: Fall/Spring/Summer*

**CSA 130C PowerPoint: Module C /1 cr. hr./1.32 periods (.66 lec., .66 lab)**

PowerPoint software and advanced techniques. Includes sound and animation, organizational charts, inserting video, and connecting to the Internet.

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)**

Prerequisite(s): OAP 111A or concurrent enrollment or equivalent proficiency on the computer keyboard.

Practical applications using integrated windows software. Includes word processing, database, spreadsheets, and slide presentation.

*Offered: Fall/Spring/Summer*

**CSA 145 Microsoft Project Software /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): CSA 101.

Introduction to the use of Microsoft Project software. Includes getting around in Project, Project schedule, communicating with Project, assigning resources and costs, tracking and closing, sharing Project and Excel, and advanced features.

*Offered: Fall/Spring/Summer*

**CSA 150 Internet Laboratory /1 cr. hr./2 periods (2 lab)**

Using the Internet. Includes e-mail, Telnet, FTP, WWW, Archie, Gopher, and other Internet tools.

Information: May be taken six times for a maximum of six credit hours.

*Offered: Fall/Spring/Summer*

**CSA 151 Introduction to the Internet for New Computer Users /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Prerequisite(s): Basic knowledge of personal computer operations.

History, principles, and use of Internet for persons with personal computer experience. Includes a short introduction to computers and computer communications, e-mail, Telnet, FTP, WWW, Archie, Gopher, and other Internet Tools.

Information: May be taken three times for a maximum of three credit hours.

*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 customizing the brows-

er, browsing the Web, printing and saving Web pages, security features, using Internet Explorer with other applications, and advanced features.

*Offered: Fall/Spring/Summer*

**CSA 152A Internet Browser: Microsoft Explorer Module A /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Microsoft Internet Explorer at the beginning level. Includes customizing the browser, browsing the Web, and printing and saving Web pages.

Information: CSA 152A and 152B together constitute CSA 152.

*Offered: Fall/Spring/Summer*

**CSA 152B Internet Browser: Microsoft Explorer Module B /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Microsoft Internet Explorer at the advanced level. Includes security features, using Internet Explorer with other applications, and advanced features.

Information: CSA 152A and 152B together constitute CSA 152.

*Offered: Fall/Spring/Summer*

**CSA 153 Internet Browser: Netscape Navigator /2 cr. hrs./3 periods (1 lec., 2 lab)**

Fundamentals of Netscape Navigator. Includes Communicator basics using Netscape Navigator, locating information, accessing information, and communications security. Also includes customizing the Netscape Navigator.

*Offered: Fall/Spring/Summer*

**CSA 153A Internet Browser: Netscape Navigator Module A /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Netscape Navigator at the beginning level. Includes Communicator basics using Netscape Navigator, and locating information.

Information: CSA 153A and 153B together constitute CSA 153.

*Offered: Fall/Spring/Summer*

**CSA 153B Internet Browser: Netscape Navigator Module B /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Netscape Navigator at the advanced level. Includes accessing information, communications security, and customizing the Netscape Navigator.

Information: CSA 153A and 153B together constitute CSA 153.

*Offered: Fall/Spring/Summer*

**CSA 155 Microsoft FrontPage /2 cr. hrs./3 periods (1 lec., 2 lab)**

Create and manage Web sites using FrontPage Web authoring system. Includes an introduction to FrontPage Explorer, working with FrontPage Explorer, working with FrontPage Editor, creating hyperlinks, and using the advanced features to create tables, forms and frames.

*Offered: Fall/Spring/Summer*

**CSA 158 The Internet for Experienced Computer Users /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

History, principle, and use of Internet. Includes Internet mail, Telnet, FTP, WWW, Archie, Gopher, and other Internet tools. Students must have a working knowledge of DOS, text editing, and electronic mail.

*Will not be offered this year*

**CSA 160 Instructional Applications of the Internet /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Integrating Internet services into the instructional process. Includes an introduction to the Internet, using the Internet, using the World Wide Web, instructional design for Computer-Mediated Communications (CMC), and educational issues of computer-mediated communication, and new technologies.

*Will not be offered this year*

**CSA 165 Dreamweaver for Microsoft Windows /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite: CSA 101 and skills using the Internet or advanced computer application skills.

Web site concepts in a Microsoft Windows environment using Dreamweaver. Includes commands and features, integrated file browser, image file formats, hyperlinks, local Web pages, Web site functionality, page layout, tables, Dreamweaver help, and get and put features.

*Offered: Fall/Spring*

**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.

*Offered: Fall/Spring/Summer*



**CSA 170A Database: Access Module A /1 cr. hr./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.

*Information:* CSA 170A, 170B, and 170C together constitute CSA 170.

*Offered:* Fall/Spring/Summer

**CSA 170B Database: Access Module B /1 cr. hr./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.

*Information:* CSA 170A, 170B, and 170C together constitute CSA 170.

*Offered:* Fall/Spring/Summer

**CSA 170C Database: Access Module C /1 cr. hr./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.

*Information:* CSA 170A, 170B, and 170C together constitute CSA 170.

*Offered:* Fall/Spring/Summer

**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 desk top, multitasking, Windows help features, Windows Explorer, file management, Windows accessories, exchanging data between programs, print management, control panel, customizing Windows, and networking with Windows.

*Offered:* Fall/Spring/Summer

**CSA 182A Microsoft Windows: Current Version Module A /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Overview of the Microsoft Windows operating system. Includes introduction to Windows, active desktop, multitasking, and Windows help features.

*Information:* CSA 182A, 182B, and 182C together constitute CSA 182.

*Offered:* Fall/Spring/Summer

**CSA 182B Microsoft Windows: Current Version Module B /1 cr. hr./1.34 periods (.67 lec., .67 lab)**

Continuation of CSA 182A. Includes Windows Explorer, file management, Windows accessories, and exchanging data between programs.

*Information:* CSA 182A, 182B, and 182C together constitute CSA 182.

*Offered:* Fall/Spring/Summer

**CSA 182C Microsoft Windows: Current Version Module C /1 cr. hr./1.32 periods (.66 lec., .66 lab)**

Continuation of CSA 182B. Includes print management, control panel, customizing Windows, and networking with Windows.

*Information:* CSA 182A, 182B, and 182C together constitute CSA 182.

*Offered:* Fall/Spring/Summer

**CSA 200 PageMaker for Windows /3 cr. hrs./4 periods (2 lec., 2 lab)**

Using PageMaker for DeskTop publishing. Includes layout and design, printing textual material, graphic materials, design elements, and printing alternatives.

*Offered:* Fall/Spring

**CSA 207 Microsoft Publisher /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* CSA 120A, 120B.

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.

*Offered:* Fall/Spring/Summer

**CSA 241 Advanced Integrated Office Suite /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s):* CSA 141

Advanced concepts and techniques for integrated Microsoft Office software. Includes advanced functions and features of Word, Excel, Access, and Power Point. Also includes an integrated capstone project.

*Offered:* Fall/Spring

**COOPERATIVE EDUCATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CED 199 Co-op Related Class in Liberal Arts /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in 199 Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring

**CED 199WK Co-op Work in Liberal Arts /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in 199 Co-op Related Class.

A supervised cooperative work program for students in a related occupational area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring

**CED 299 Co-op Related Class in Liberal Arts /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in 299 Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring

**CED 299WK Co-op Work in Liberal Arts /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in 299 Co-op Related Class.

A supervised cooperative work program for students in an occupational area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring

**CRIME SCENE MANAGEMENT**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**CSM 100 Introduction to Photographic Equipment and Procedures for Crime Scene Investigations /1 cr. hr./1 period (1 lec.)**

Focuses on developing skills in photographing a crime scene and processing black and white films and paper. Includes tools and equipment, taking basic crime scene photographs, and chemical processes used in processing crime scene photographs.

*Offered:* Fall/Spring

**CSM 101 Criminalistics /2 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 of 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, agency certification, and the future of criminalistics.

*Offered:* Fall/Spring

**CSM 102 Crime Scene Photography /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* CSM 100.

Focuses on the specific skills needed to photograph various types of crime scene situations. Includes 1:1 photography, travel evidence, proper use of photographic equipment for crime scene investigations, and photographing post mortem injuries.

*Information:* CSM 100 and 102 can also be taken concurrently.

*Offered:* Fall/Spring

**CSM 103 Latent Processing /5 cr. hr./5 period (.5 lec.)**

Focuses on the techniques involved in developing latent fingerprints. Includes physical characteristics and types of fingerprints, principles of fingerprinting, fingerprint collection, fingerprint surfaces, and the photography of latent prints.

*Offered:* Fall/Spring

**CSM 104 Fingerprint Identification /3 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, classification systems.

*Offered:* Fall/Spring

**CSM 105 Blood Pattern Documentation /5 cr. hr./5 period (.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. hr./5 period (.5 lec.)**

Focuses on the evidentiary value associated with firearms in crime scene management. Includes discussion of firearm and ammunition recognition, components, class and individual characteristics, firing zones, and the scientific technology involved in the comparative analysis.

*Offered: Fall/Spring*

**CSM 107 Courtroom Testimony and Report Writing /5 cr. hr./5 period (.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.

*Offered: Fall/Spring*

**CULINARY ARTS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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, concept location and design, menu development, budgeting and controlling costs, financing and leasing, legal and tax matters, defining jobs and organizing the restaurant, staffing, employment training and development, kitchen equipment, 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: Spring/Summer*

**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.

*Information:* Reviews legal elements of food service sanitation based on requirements and recommendations of Pima County Health Department.

*Offered: Fall*

**CUL 120 Stewarding /2 cr. hrs./2 periods (2 lec.)**

Introduction to stewarding as kitchen support service. Includes cleaning and sanitizing a kitchen, functions of a steward, receiving, food rotation, and ordering systems.

*Will not be offered this year*

**CUL 126 Applied Mathematics for Food Service /1 cr. hr./1 period (1 lec.)**

Fundamentals of cost controls. Includes an introduction to profit and loss, balance sheet and net worth statements, measurement and conversions, recipe conversions, unit and recipe costing, yield tests, inventory and food cost percentages, controlling food costs, and menu pricing.

*Will not be offered this year*

**CUL 130 Hot Foods I /3 cr. hrs./3 periods (3 lec.)**

Introduction to all facets of hot foods. Includes classical stocks, sauces, soups, liaisons: roux and starches, cooking techniques, preparation of vegetables, and butchering.

*Offered: Fall/Spring*

**CUL 140 Culinary Principles I /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, the menu, food tasting, herbs and spices, chocolate, and vegetables.

*Offered: Spring/Summer*

**CUL 150 Garde Manger I /3 cr. hrs./3 periods (3 lec.)**

Introduction to the fundamentals of Garde Manger. Includes care of equipment, dressings: emulsified/non-emulsified, knife skills, basic sandwiches, herbs and spices, salad greens, and commercial cooking techniques.

*Offered: Fall/Spring*

**CUL 160 Bakery and Pastry Production I /3 cr. hrs./3 periods (3 lec.)**

Theory and practice of operating a bakery or pastry shop in a hotel or restaurant kitchen. Includes planning, ordering and scheduling for bakery production, safety and sanitation, bakery and pastry vocabulary, ingredients, yeast breads, quick breads, creams and custards, dough, cakes, filling, and frostings, cookies and brownies, and elementary plating, decorating and garnishing techniques.

*Offered: Fall/Spring*

**CUL 161 Cake Decorating and Candy Making /3 cr. hrs./4 periods (2 lec., 2 lab)**

Basic principles and methods of cake decorating and candy making. Includes history of cakes, selection of ingredients, cooking procedures, cake assembly, and presentation. Also includes techniques for creating wedding cakes and holiday delectables.

*Offered: Fall/Spring*

**CUL 170 Dining Room Operations I /2 cr. hrs./2 periods (2 lec.)**

Theory and practice of operating a casual dining room, dining room preparation and guest service, proper etiquette for service and clearing, wine and beverage sales and service, salesmanship, and serving the public.

*Will not be offered this year*

**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 new world food discoveries, and professional food preparation.

*Offered: Fall*

**CUL 185 Catering Operations I /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: Spring/Summer*

**CUL 199 Co-op Related Class in CUL /1 cr. hr./1 period (1 lec.)**

*Corequisite:* Concurrent enrollment in 199WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered: Fall/Spring/Summer*

**CUL 199WK Co-op Work in CUL /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite:* Concurrent enrollment in 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*Offered: Fall/Spring/Summer*

**CUL 210 Menu Planning and Facilities Design /2 cr. hrs./2 periods (2 lec.)**

Principles and techniques of menu planning and restaurant design for food service operations. Includes designing a facility, designing a kitchen, determining equipment needs, developing a cost effective menu, ambiance and food, and inventory control procedures.

*Will not be offered this year*

**CUL 230 Hot Foods II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* CUL 130.

Hot food preparation and service in a contemporary kitchen. Includes contemporary sauce making, vegetables, grains, and starches, natural liaisons, cooking techniques, food plating, and sanitation procedures and techniques.

*Offered: Spring/Summer*

**CUL 240 Culinary Principles II /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* CUL 140.

Advanced culinary instruction. Includes food service vocabulary, grains, pasta, cheese, fish and shellfish, game, international cuisine, and wine, beer and spirits.

*Offered: Spring*

**CUL 250 Garde Manger II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): CUL 150.*

Refinement of skills required in a Garde Manger Department. Includes charcuterie, cold buffets, salad greens, salad dressings, garnish, and hygiene and sanitation standards.

*Offered: Spring/Summer*

**CUL 260 Bakery and Pastry Production II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): CUL 160.*

Advanced theory and practice of operating a bakery or pastry shop in a hotel or restaurant kitchen. Includes planning, ordering, and scheduling for bakeshop production, safety and sanitation, bakery and pastry vocabulary, advanced yeast breads, classic French pastries, ice cream and frozen desserts, assembling pastries, pastry garnishes, and complex plated desserts.

*Offered: Spring/Summer*

**CUL 261 Advanced Cake Decorating and Candy Making /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): CUL 161*

Advanced principles and methods of cake decorating and candy making. Includes advanced flower design, gum paste, airbrush, photo transfer, fondant, and chocolate artistry. Also includes advanced techniques for creating cakes for weddings and special occasions.

*Offered: Fall/Spring*

**CUL 270 Dining Room Operations II /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s): CUL 170.*

Theory and practice of operating a formal dining room. Includes dining room preparation and guest service, proper etiquette for service and clearing, wine and beverage sales and service, salesmanship, customer relations, banquets and buffets, table side food preparation, and maitre d'hôtel responsibilities.

*Will not be offered this year*

## DANCE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**DNC 130 Beginning Tap Dance /1 cr. hr./2 periods (2 lab)**

Introduction to tap dancing. Includes basic foot movement, body movements, simple steps, and a complete routine.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Fall/Spring*

**DNC 131 Intermediate Tap Dance /1.5 cr. hrs./3 periods (3 lab)**

Tap dance for students with basic skills. Includes time steps, coordination skills, footwork, and more complex combinations and routines.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Spring*

**DNC 132 Advanced Tap Dance /1.5 cr. hrs./3 periods (3 lab)**

Advanced techniques and skills in tap dance. Includes time steps, footwork, and combinations and routines.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Spring*

**DNC 140 West Coast Swing /1 cr. hr./2 periods (2 lab)**

Introduction to the West Coast Swing. Includes an overview of the West Coast Swing, dance techniques, beginning and intermediate level patterns, moves, and turns.

*Offered: Fall/Spring*

**DNC 145 Beginning Country Western Dance /1 cr. hr./2 periods (2 lab)**

Introduction to country western dance for the beginner. Includes basic steps, turns, techniques, and skill development.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Fall*

**DNC 146 Intermediate Country Western Dance /1.5 cr. hrs./3 periods (3 lab)**

Country western dance techniques for the confident dancer. Includes dance patterns, styles and performance transformation.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Fall/Spring*

**DNC 147 Advanced Country Western Dance /1.5 cr. hr./3 periods (3 lab)**

Advanced country western dance techniques. Includes dance patterns, dance execution, and performance techniques.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**DNC 150 Introduction to Ballet /2 cr. hr./3 periods (1 lec., 2 lab)**

Introduction to basic principles of classical ballet. Includes development of proper body alignment, muscular structure and movement memory for use in other dance classes. Also includes acquisition of a working vocabulary of ballet terminology.

*Offered: Fall/Spring*

**DNC 151 Intermediate Ballet /2 cr. hr./3 periods (1 lec., 2 lab)**

*Prerequisite(s): DNC 150 or consent of instructor.*

Continuation of the fundamentals of classical ballet. Includes improving ballet fundamentals and expanding ballet vocabulary and technical ability. Also includes continued development of proper body alignment and placement.

*Offered: Fall/Spring*

**DNC 160 Ballroom/Latin Dance /1 cr. hr./2 periods (2 lab)**

Introduction to ballroom and Latin dancing. Includes basic steps, turns and varied techniques of traditional and modern dances such as the fox-trot, waltz, swing, tango, cha cha, rumba and mambo. Also includes skill development in posture, balance, control, flexibility, endurance and coordination.

*Offered: Fall/Spring/Summer*

**DNC 166 Beginning Modern Dance /1 cr. hr./2 periods (2 lab)**

Development of basic skills for dance. Includes biomechanical function and care of the body, dance theory and technique, and expressive movement.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Fall*

**DNC 167 Intermediate Modern Dance /1.5 cr. hrs./3 periods (3 lab)**

Development of intermediate skills in stretch and strength for dance. Includes proper biomechanical function and care of the body, dance theory, and technique. Also includes an introduction to more complex material and greater movement articulation is expected.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Spring*

**DNC 168 Advanced Modern Dance /1.5 cr. hrs./3 periods (3 lab)**

Development of advanced skills in stretch and strength for dance. Includes proper biomechanical function and care of the body, dance theory and technique, and a capacity for expressive movement.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**DNC 169 Dance Ensemble /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): DNC 166, 167, or 168.*

Development of dance technique and performance skills. Includes learning dances, the principles of dance composition, and the concert experience.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Fall/Spring/Summer*

**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 styles and roles of dance in global and historical perspectives.

*Offered: Fall/Spring*

**DNC 219 Jazz Dance I /2 cr. hrs./3 periods (1 lec., 2 lab)**

Introduces and develops movement skills for jazz dance styles in lyrical, Broadway, and current trends of expression. Includes movements incorporating spatial awareness, rhythmic variations, and isolations of head, shoulders, ribs, hips, arms and legs. Also includes basic jazz vocabulary.

*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)**

*Prerequisite(s): DNC 120 or consent of instructor.*

Progressive development of alignment for intermediate level jazz dance. Includes movements incorporating syncopation of body parts, dynamic efforts, and spatial and rhythmic variations. Also includes focus on strength and stability of the body's center or core, of the upper extremity, and of the outward and inward rotation of the legs.

*Information:* May be taken four times for a maximum of eight credit hours.

*Offered: Fall/Spring*

**DNC 221 Jazz Dance III /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s): DNC 220 or consent of instructor.*

Advanced level training for jazz dance. Includes continuing refinement of expressive body control of alignment for jazz movements and encouragement toward performance opportunities.

*Information:* May be taken four times for a maximum of eight credit hours.

*Offered: Fall/Spring*



## DENTAL ASSISTING

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### DAE 159 Introduction to Health Care for Dental Assisting /2 cr. hrs./2 periods (2 lec.)

*Prerequisite(s):* Consent of program coordinator.

Basic skills essential to working successfully with patients and co-workers in dental offices and clinics. Includes the psychology of human behavior and communication skills as a member of a dental health team. Also includes college success skills, critical thinking, resume writing, and interview techniques.

*Offered:* Fall

### DAE 160 Orientation to Dental Care /1 cr. hr./1 period (1 lec.)

*Prerequisite(s):* Consent of program coordinator.

*Corequisite(s):* DAE 161, 162/162LB, 163/163LB, 164/164LB, 165/165LB.

Overview of the field of dental care. Includes the dental health team, ethics, jurisprudence and professional organizations.

*Offered:* Fall

### DAE 161 Biomedical Dental Science /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s):* Consent of program coordinator.

*Corequisite(s):* DAE 160, 162/162LB, 163/163LB, 164/163LB, 165/165LB.

The biosciences as they relate to the oral cavity. Includes anatomy, physiology, histology, microbiology, infection control, oral pathology, and nutrition as each affects total dental health.

*Offered:* Fall

### DAE 162/162LB Dental Assisting I /3 cr. hrs./5 periods (2 lec., 3 lab)

*Prerequisite(s):* Consent of program coordinator.

*Corequisite(s):* DAE 160, 161, 163/163LB, 164/164LB, 165/165LB.

Principles and techniques of dental assisting. Includes morphology of human dentition and dental instruments and their use in various operative procedures.

*Offered:* Fall

### DAE 163/163LB Oral Radiography /3 cr. hrs./5 periods (2 lec., 3 lab)

*Prerequisite(s):* Consent of program coordinator.

*Corequisite(s):* DAE 160, 161, 162/162LB, 164/164LB, 165/165LB.

Use of dental roentgenography as a diagnostic aid. Includes safety factors when exposing radiographs; training in exposing, processing, mounting, labeling and filing radiographs; and training in recognizing radiographs that are acceptable for diagnosis.

*Offered:* Fall

### DAE 164/164LB Dental Materials /3 cr. hrs./5 periods (2 lec., 3 lab)

*Prerequisite(s):* Consent of program coordinator.

*Corequisite(s):* DAE 160, 161, 162/162LB, 163/163LB, 165/165LB.

Chemical and physical properties of dental materials used in dental practice. Includes materials used in preventive, restorative, and prosthetic procedures.

*Offered:* Fall

### DAE 165/165LB Pre-Clinical Procedures /2 cr. hrs./5 periods (1 lec., 4 lab)

*Prerequisite(s):* Consent of program coordinator.

*Corequisite(s):* DAE 160, 161, 162/162LB, 163/163LB, 164/164LB.

Techniques and procedures of chairside dental assisting. Includes both general and specialty dental practices.

*Offered:* Fall

### DAE 166 Dental Assisting II /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s):* DAE 159, 165/165LB.

*Corequisite(s):* DAE 167, 190LB.

Includes techniques and procedures of pharmacology, therapeutics and emergency medical-dental care as applied to dental assisting.

*Offered:* Spring

### DAE 167 Dental Assisting III /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s):* DAE 159, 165/165LB.

*Corequisite(s):* DAE 166, 190LB.

Includes principles and techniques of dental practice management and oral health education as applied to dental assisting.

*Offered:* Spring

### DAE 190LB Clinical Procedures /6 cr. hrs./24 periods (24 lab)

*Prerequisite(s):* DAE 161, 162/162LB, 163/163LB, 164/164LB, 165/165LB.

*Corequisite(s):* DAE 166, 167.

Application of acquired skills in a clinical environment. Includes direct supervision of the dentist and instructor.

*Offered:* Spring

## DENTAL HYGIENE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### DHE 101/101LB Pre-Clinical Dental Hygiene /4 cr. hrs./8 periods (2 lec., 6 lab)

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.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Fall

### DHE 104/104LB Dental and Oral Morphology /3 cr. hr./3 periods (1 lec., 2 lab)

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.

*Information:* This is a selective admissions program course. Special permission is required.

*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.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Fall

### DHE 116/116LB Oral Radiography /3 cr. hrs./5 periods (2 lec., 3 lab)

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.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Spring

### DHE 119 Periodontology /1 cr. hr./1 period (1 lec.)

Survey of periodontology comprised of the etiology, diagnosis and prognosis of periodontal disease. Includes an introduction and historical background, preventative dentistry modalities, radiographic interpretation of periodontal disease, and treatment planning for the dental hygienist.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Spring

### DHE 120 Oral Pathology /2 cr. hrs./2 periods (2 lec.)

*Prerequisite(s):* DHE 101, 104, 107.

*Corequisite(s):* Concurrent enrollment in DHE 116 and DHE 190.

Oral pathology is the study of human disease as found within all of the tissues represented in the area of the oral cavity. Includes basic sciences, clinical presentations, disease manifestations, diagnostic methods and treatment modalities of pathology of the oral region.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Spring

### DHE 121 Preventive Dentistry and Nutrition /3 cr. hrs./3 periods (3 lec.)

Introduction to dental disease and the promotion of dental health. Includes oral hygiene instruction, antimicrobials, fluorides, nutrition, and diet and their role in dental disease and health.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Fall

### DHE 190/190LB Clinical Dental Hygiene I /4 cr. hrs./8 periods (2 lec., 6 lab)

Application of dental hygiene skills with a variety of clinical patients with simple dental hygiene care plans at the beginning level. Includes professionalism and ethics, infection control, body mechanics, evaluation of patient medical and dental history, assessment data, instrumentation, and removal of soft deposits. Also includes fluorides, clinical procedures, diverse patient populations, medical emergency procedures, and laboratory procedures.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Spring



**DHE 191/191LB Clinical Dental Hygiene II /3 cr. hrs./7 periods (1 lec., 6 lab)**

Continuation of DHE 190. Application of dental hygiene skills on a variety of patients with advanced beginner care plans at the advanced beginner level. Includes lectures of patients with special needs. Also includes rotations to off campus clinical sites.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Summer

**DHE 196 Independent Studies in Dental Hygiene /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of program director.

Independent clinical applications, readings, 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.

*Will not be offered this year*

**DHE 204/204LB Dental Materials /3 cr. hrs./5 periods (2 lec., 3 lab)**

Chemical and physical properties of dental materials used in dental practice. Includes materials used in preventive, restorative, and prosthetic procedures.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Fall

**DHE 207 Pharmacology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DHE 116, 119, 190.

Introduction to the theory of pharmacology as it relates to dentistry. Includes identification of drugs which affect or are affected by dental treatment.

*Offered:* Summer

**DHE 208LB Pain and Anxiety Control for Dental Hygiene /1 cr. hr./3 periods (3 lab)**

*Prerequisite(s):* Completion of first year Dental Hygiene Program and DHE 207. Application of local anesthetics, nitrous oxide and oxygen sedation. Includes medical emergencies and dental complications.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Fall

**DHE 209/209LB Computers and Practice Management /2 cr. hrs./4 periods (1 lec., 3 lab)**

Introduction to basic computer skills and applications used in dentistry. Includes computers and their functions, Microsoft software applications, dental office management software applications, the business of dentistry, and dental hygiene career opportunities.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Fall

**DHE 213/213LB Advanced Periodontal Services /2 cr. hrs./4 periods (1 lec., 3 lab)**

Application of Dental Hygiene skills on advanced periodontal patients. Includes diagnosis, measurement, treatment of periodontal disease and use of antimicrobial therapies and anesthesia in the periodontal treatment plan. Also includes lectures of advanced periodontal treatment, implants, occlusal evaluation, periodontal maintenance, and surgical procedures.

*Information:* This is a selective admissions program course. Special permission is required.

*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.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Spring

**DHE 290/290LB Clinical Dental Hygiene III /5 cr. hrs./13 periods (1 lec., 12 lab)**

Application of dental hygiene skills with a variety of clinical patients with dental hygiene care plans at the intermediate level.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Fall

**DHE 291/291LB Clinical Dental Hygiene IV /4 cr. hrs./10 periods (1 lec., 9 lab)**

Application of dental hygiene skills with a variety of clinical patients with dental hygiene care plans at the advanced level.

*Information:* This is a selective admissions program course. Special permission is required.

*Offered:* Spring

**DHE 296 Advanced Independent Studies in Dental Hygiene /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Departmental approval.

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.

*Will not be offered this year*

**DENTAL LABORATORY TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**DLT 101/101LB Dental Morphology /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* Consent of program director.

Development and structure of teeth and construction of dentures. Includes configuration of hard and soft areas of the jaws, as related to denture construction. Emphasis on principles in tooth design and balanced occlusion with regard to normal and abnormal ridge relationship. Plaster sculpture is used in the production of a full complement of anatomical teeth.

*Offered:* Fall

**DLT 102 Nonmetallic Dental Materials /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Principles of chemistry and physics as related to dental materials. Includes review of such products as gypsum materials, plastic and elastic duplicating materials, denture base materials, acrylic resin teeth, dental waxes, separating media and dental porcelain.

*Offered:* Fall

**DLT 103/103LB Complete Dentures /4 cr. hrs./10 periods (1 lec., 9 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Complete examination of the relationship between upper and lower dentures as interpreted on a functional articulator. Includes casting of models, trays, bite blocks, setting up dentures in balanced occlusion, investing, packing, curing and finishing of dentures.

*Offered:* Fall

**DLT 104/104LB Dental Laboratory I /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Chemistry and metallurgy of dental alloys, the compositions of plating solutions and principles of electroplating. Includes use of cast gold alloys, abnormal castings, base metal casting alloys, metallographic techniques and wrought metal bars and clasps. A full complement of teeth is sculptured from wax ivorine blocks and set up to occlusion. Upper and lower partial frame structures are constructed in cast chromium-cobalt alloy.

*Offered:* Spring

**DLT 105/105LB Partial Denture Construction /4 cr. hrs./10 periods (1 lec., 9 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Construction of partial dentures and appliances. Includes wrought metal lingual bars and clasps; investing and soldering techniques of bilateral appliances; processing partial dentures in acrylic in three techniques; fabrication of dies of inlays and abutments; and repair and relining of dentures.

*Offered:* Spring

**DLT 106/106LB Orthodontics and Maxillofacial Construction /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Construction and theory of simple orthodontic and maxillofacial appliances. Includes construction utilizing wrought wire and/or cast metal frames as retentive devices and the processing of acrylic to form final appliances.

*Offered:* Spring

**DLT 108 Laboratory Management /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Examination of the principles of dental laboratory management. Includes legal, ethical and historical aspects of the dental laboratory, infection control, principles of management and computer usage in the dental laboratory.

*Offered:* Spring

**DLT 201/201LB Dental Laboratory II /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Principles of fixed bridgework, abutments, inlays and crowns. Includes theory of spanning spaces with various types of artificial teeth in complete fixed and cantilever bridgework; importance of stress, function and aesthetics in the design of fixed bridgework; handling of wax patterns, investments, casting techniques and making dies from impressions; and techniques in waxing, investing, casting inlays, three-quarter crown, full crown and veneers. Tooth carving techniques taught in previous semester are used.

*Will not be offered this year*

**DLT 202 Dental Metallurgy I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Examination of metals currently used by the dental technician. Includes physical properties of metals, crystal structure, manufacturing processes, theory of alloys, soldering, casting investments and heat treatment of gold alloys.

*Will not be offered this year*

**DLT 203/203LB Fixed Bridgework /4 cr. hrs./10 periods (1 lec., 9 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Construction of fixed bridgework. Includes waxing, investing and finishing simple and complex inlays, full crowns, veneers and three-quarter crowns; and construction of bridges of various designs utilizing dental alloys.

*Will not be offered this year*

**DLT 204/204LB Dental Laboratory III /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Principles of surveying, design of cast partials and technical applications of metallurgy and engineering principles. Includes composition and physical properties of gold and chromium-cobalt alloys and their working qualities. Also includes designs and principles used in the construction of removable bridgework.

*Will not be offered this year*

**DLT 206/206LB Dental Ceramics /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Skill development in porcelain and porcelain-on-metal techniques. Includes composition and physical properties, as well as the fundamentals of manipulating porcelain and metal. Emphasis on low- and high-fusing porcelains, their vitrification, control of form, control of color, design of metal structure and application of stain and glaze.

*Will not be offered this year*

**DLT 207/207LB Advanced Dental Laboratory Technology /6 cr. hrs./9 periods (3 lec., 6 lab)**

*Prerequisite(s):* DLT 101 or concurrent enrollment, and consent of program director.

Application of dental laboratory techniques. Includes complete dentures, partial dentures, crown and bridge work, dental ceramics, orthodontics, and maxillofacial appliances.

*Will not be offered this year*

**DIGITAL ARTS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**DAR 051 Basic Macintosh for Computer Graphics /1 cr. hr./2 periods (2 lab)**

Introduction to the Macintosh computer environment. Includes operating system, techniques, document file, hardware, and disks.

*Offered: Fall/Spring/Summer*

**DAR 100 Fundamentals of Rendering /4 cr. hrs./5 periods (3 lec., 2 lab)**  
Basic principles and methods of drawing as applied to digital and graphic design. Includes overview of drawing software, thumbnails, objects in perspective, media, drawing techniques, composition drawing, drawing styles, and professional environment.

*Offered: Fall/Spring/Summer*

**DAR 101 Color Rendering and Theory /4 cr. hrs./5 periods (3 lec., 2 lab)**  
*Recommended: DAR 100.*

Basic color theory and rendering principles as applied to digital and graphic design. Includes color terminology, color perspective, color perception, meaning of colors, media characteristics, drawing software, traditional drawing methods, and professional environment. Also includes utilizing wood, food, paper, metallic, landscape, and cloth items.

*Offered: Fall/Spring/Summer*

**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)**

*Prerequisite(s):* DAR 103.

Letter forms and use in visual communications. Includes type rendering, letter spacing, type and headline groupings, type relationships, type images, and type applications.

*Offered: Fall/Spring/Summer*

**DAR 112 Graphic Design I /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s):* DAR 103, 111.

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 120 Applied Computer Graphics /4 cr. hrs./5 periods (3 lec., 2 lab)**

Introduction to current computer graphics software. Includes Desktop publishing, postscript illustration, painting or photo editing, computer graphics hardware, and professional environment.

*Offered: Fall/Spring/Summer*

**DAR 121 Desktop Publishing for Communication Graphics: PageMaker /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s):* DAR 051, 120.

Layout, graphics, and typography on a computer system. Includes computer basics, current PageMaker software, computer graphics, hardware, documents, and professional environment.

*Offered: Fall/Spring/Summer*

**DAR 122 Desktop Graphics: Adobe Illustrator /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s):* DAR 051, 120.

Computer generated graphics and illustrations. Includes current Adobe Illustrator software, computer graphics hardware, documents, and professional environment.

*Offered: Fall/Spring/Summer*

**DAR 123 Desktop Graphics: Macromedia Freehand /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s):* DAR 051 or 120.

Computer generated graphics and illustrations. Includes current Macromedia Freehand software, documents, computer graphics, hardware, and professional environment.

*Will not be offered this year*

**DAR 124 Writing for Film and Television /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DAR 103 or concurrent enrollment.

Examining dramatic writing in visual mediums and creating the story for the screen. Includes visual storytelling, story structure, working screen writers, writing scenes, finishing stories, writing for television, and directors and cinematographers.

*Offered: Fall/Spring/Summer*

**DAR 125 Beginning Video Production /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* DAR 124.

Principles and techniques of video production. Includes operation and application of all the basic tools, equipment, and techniques used in television production. Also includes practical experience as part of a production team.

*Information:* This course will require additional expenses for supplies in addition to course and lab fees.

*Offered: Fall/Spring*

**DAR 126 Introduction to Offset Printing /4 cr. hrs./5 periods (3 lec., 2 lab)**

Basic principles of graphic layout, design and typography through computer applications. Includes printer's system of measurement, basic computer operations, electronic pre-press, electronic pagemaking, computerized typesetting, using graphics, design and layout, major printing processes, graphic cameras, offset platemaking, image assembly, proofreading, and presswork.

*Offered: Fall/Spring/Summer*

**DAR 127 Sound Production for Radio /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* DAR 103, 124.

Methods and techniques of the operation of radio broadcasting equipment. Includes use of studio microphones, audio control consoles, audio type cartridge machines, audio tape standard recorders and optical disk machines.

**Information:** This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring/Summer

**DAR 128 Digital Photography /4 cr. hrs./6 periods (2 lec., 4 lab)**

Introduction to digital photography emphasizing the technical and aesthetic issues and how these qualities inform image content. Includes history of still photography, applications of digital cameras, aspects of the digital medium, camera and computer equipment requirements, digital still camera, memory and file formats in digital still cameras, digital still camera lenses, proper exposure, light, color, and temperature, using depth of field, using shutter speed effects, proper use of digital photography, lighting for digital stills, elements of composition, how composition informs content, photographic rendering, photographic reality, outputting and publishing, portfolio preparation, and career options in digital photography.

**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. Professional cameras, computers and software, lighting equipment, and a studio will be provided. There may be additional supply costs in addition to course fees.

*Offered:* Fall/Spring

**DAR 140 Digital/Traditional Illustration and Cartooning I /4 cr. hrs./5 periods (3 lec., 2 lab)**

**Prerequisite(s):** DAR 101.

Basic principles and techniques as applied to beginning digital and traditional drawing styles and subject matter. Includes loose style drawing, digital drawing software, media development, beginning techniques, concept ideas, composition rendering, personal style development, and professional environment.

*Offered:* Fall/Spring/Summer

**DAR 141 Digital Pre-Press Production /3 cr. hrs./5 periods (2 lec., 3 lab)**

**Prerequisite(s):** DAR 126.

Principles and procedures in digital pre-press production. Includes review of the printers system of measurement, Adobe PageMaker operations, QuarkXpress operations, color manipulation in Adobe Illustrator, high resolution output devices, digital platemaking, conventional and digital proofing, and conventional platemaking.

*Offered:* Fall/Spring/Summer

**DAR 142 Airbrush Techniques I /4 cr. hrs./5 periods (3 lec., 2 lab)**

**Prerequisite(s):** DAR 100.

Introduction to the use of the airbrush. Includes airbrush operation, retouching, illustration, tools and materials, techniques, and professional environment.

*Will not be offered this year*

**DAR 145 Digital/Traditional Illustration and Cartooning II /4 cr. hrs./5 periods (3 lec., 2 lab)**

**Prerequisite(s):** DAR 140.

Continuation of DAR 140 at an intermediate level. Includes intermediate loose style drawing, digital drawing and painting, intermediate media development, intermediate techniques, intermediate concept ideas, intermediate composition rendering, intermediate personal style development, and professional environment.

*Offered:* Fall/Spring/Summer

**DAR 150 Customer Service Technology /3 cr. hrs./5 periods (2 lec., 3 lab)**

**Prerequisite(s):** DAR 126.

Principles and procedures of working with customers in a printing environment. Includes printers system of measurement, paper cutter operations, telephone communications, pantone matching system, paper, paper estimation, paper binding machines, cost estimating, bindery machine operations, and copy machine operations.

*Offered:* Fall/Spring

**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 historical development of different genres, significant films and directors, film studios, and technologies. Also includes film screening sessions, guest film makers, and cinema historians.

*Offered:* Fall/Spring

**DAR 174 Business of Audio /3 cr. hrs./4 periods (2 lec., 2 lab)**

**Prerequisite(s):** DAR 103, 124.

Economic, legal and financial aspects of the music and recording industry. Covers current markets for music videos, compact disks, and DAT technologies. Also examines recording companies and artists, music writers and publishers, copyright laws, and general music/audio industry concerns.

*Offered:* Fall/Spring/Summer

**DAR 175 Cinematography /3 cr. hrs./4 periods (2 lec., 2 lab)**

**Prerequisite(s):** DAR 124 or concurrent enrollment.

Basic techniques of motion picture production. Includes camera operation, animation application, film editing, and motion picture lab processes. Also includes the creation and production of super 8 films.

**Information:** This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring

**DAR 176 Film Animation /3 cr. hrs./5 periods (2 lec., 3 lab)**

Introduction to film animation techniques. Includes the organization of various creative arts in the production of an animated film with an emphasis on the individual's use of animation as a means of personal expression. Also includes an historical overview of animation, storyboard techniques, developing story structure, translating concepts into visual terms, character design, backgrounds, layout drawings, animation techniques, development of pre-production sound elements, and the integration of these elements aimed towards the production of a complete sound animation film.

**Information:** This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring

**DAR 177 Location Sound for Film and Video /4 cr. hrs./5 periods (3 lec., 2 lab)**

**Prerequisite(s):** DAR 103, 124.

Theory and practice of sound recording on location for feature films, documentaries, video productions, and multimedia. Includes hands-on experience with sync sound recording, time code, microphone applications and problems-solving on location.

**Information:** This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring

**DAR 190 Industry Experience in Graphic Pre-Press /3 cr. hrs./15 periods (15 lab)**

**Prerequisite(s):** DAR 141.

Work environment in digital creation of art for print. Includes pre-press process, work flow, and pre-press operations.

*Offered:* Fall/Spring

**DAR 196 Digital Arts Independent Projects: Media Projects /1-4 cr. hrs./3-12 periods (3-12 lab)**

**Prerequisite(s):** Six credit hours of DAR classes and consent of instructor.

Students independently continue their development in media communications with the help of a faculty member.

**Information:** May be taken three times for a maximum of twelve credit hours.

*Offered:* Fall/Spring

**DAR 199 Co-op Related Class in DAR /1 cr. hr./1 period (1 lec.)**

**Prerequisite(s):** DAR 112, 210, 211.

**Corequisite(s):** Concurrent enrollment in DAR 199WK Co-op Work.

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.

**Information:** May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**DAR 199WK Co-op Work in DAR /1-8 cr. hrs./5-40 periods (5-40 lab)**

**Prerequisite(s):** DAR 112, 210, 211.

**Corequisite(s):** Concurrent enrollment in DAR 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring/Summer

**DAR 201 Figure Drawing I /4 cr. hrs./5 periods (3 lec., 2 lab)**

**Prerequisite(s):** DAR 100.

Drawing the human head, hands and features. Includes eyes, mouth, nose, hair, full head, and hands.

*Will not be offered this year*

**DAR 202 Figure Drawing II /4 cr. hrs./5 periods (3 lec., 2 lab)**

**Prerequisite(s):** DAR 201.

Continuation of DAR 201. Includes proportions, anatomy, toning, and body positioning and movement.

*Will not be offered this year*

**DAR 203 Figure Drawing III /4 cr. hrs./5 periods (3 lec., 2 lab)**

**Prerequisite(s):** DAR 202.

Continuation of DAR 202. Includes advanced anatomy, toning, body positioning and movement, and the clothed body.

*Will not be offered this year*



**DAR 205 Lighting for Film and Video /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* DAR 124 and 125, or 175.

Creative lighting techniques, practices, and use of equipment. Includes lighting theory, color theory, and technical and artistic lighting methods used in feature film, commercials, and video production. Also includes working as part of a film or video lighting production team.

*Information:* This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring/Summer**DAR 210 Graphic Design II /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 112.

Continuation of DAR 112. Includes ads, billboard, logos, posters, brochures, quick ads/flyers, and other mediums.

*Offered:* Fall/Spring/Summer**DAR 211 Graphic Design III /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 210.

Continuation of DAR 210. Includes advanced work on ads, billboards, logos, posters, brochures, quick ads/flyers, and other mediums.

*Offered:* Fall/Spring/Summer**DAR 212 Graphic Design IV /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 211.

Continuation of DAR 211. Includes portfolio work on ads, billboards, logo posters, brochures, quick ads/flyers, and other mediums.

*Offered:* Fall/Spring/Summer**DAR 213 Package Design /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 112.

Procedures and techniques for creating wrapper and container comprehensives. Includes layout, packaging, construction techniques, mock-up and the professional environment.

*Offered:* Fall/Spring/Summer**DAR 214 Communication Graphics Business and Portfolio / 2 cr. hrs./3 periods (1 lec., 2 lab)***Prerequisite(s):* DAR 112.

Business techniques for the communication graphics industry. Includes designer/client relationship, fee structures for designer services, documenting time, portfolio development, and advertising and promotion.

*Offered:* Fall/Spring**DAR 215 Advanced Cinematography /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* DAR 175.

Tools, techniques, and procedures involved in professional film production. Includes the film proposal, script breakdown, pre-production and post-production of one 16 mm film, and laboratory experience with film production equipment.

*Information:* This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring**DAR 216 Offset Presswork /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s):* DAR 126.

Theory, operation and maintenance of small offset presses. Includes offset press theory and operations, plate preparation and maintenance, AB Dick press operations, Multilith press operations, digital offset press theory, line printing, halftone printing, and single and two color printing.

*Offered:* Fall/Spring/Summer**DAR 217 Post Production for Film /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 215.

Introduction to film post production video and audio techniques and aesthetics of film editing. Includes step-by-step editing room procedures leading to final screening. Also includes logging, storing, retrieving footage, synchronizing dailies, selecting takes, editing of dialogue and sound effects, final mixing, and color.

*Offered:* Fall/Spring/Summer**DAR 218 Introduction to Film Music /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* DAR 103 and 124 or consent of instructor.

Historical development of and fundamental techniques applied to film music. Includes influential and new composers and scores, relationships to genres, scripts, action and characters, and business and cultural associations. Also includes composing for varying media, spotting, timing, recording, editing and dubbing, and electronic and contemporary scoring for specialized styles and themes as applied to motion pictures, television, video, and the new media.

*Offered:* Fall/Spring/Summer**DAR 220 DeskTop Publishing for Communication Graphics: QuarkXpress /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 051, 120, or experience in computer graphics.

Design and creation of publications on a personal computer system. Includes current QuarkXpress software, documents, hardware, and professional environment.

*Offered:* Fall/Spring**DAR 221 Photo Image Editing: Adobe PhotoShop /4 cr. hrs./ 5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 051, 120, 122, or experience in computer graphics.

Computer retouching and manipulation of photos and illustrations. Includes current Adobe PhotoShop software, edit and retouch, hardware and professional environment.

*Offered:* Fall/Spring/Summer**DAR 222 Advanced Photo Image Editing: Adobe PhotoShop / 4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 221.

Continuation of DAR 221. Includes advanced techniques using current Adobe PhotoShop software, hardware, documents, and professional environment.

*Offered:* Fall/Spring**DAR 223 Computer Painting /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 101.

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.

*Offered:* Fall/Spring**DAR 224 Advanced Screenwriting /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* DAR 103 and 124 or consent of instructor.

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.

*Offered:* Fall/Spring/Summer**DAR 225 Advanced Video Production /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* DAR 125.

Production of a variety of television programs. Includes the utilization of television equipment in remote and on-location sites as well as in studio operation. Also includes the production of special programs for the arts, education, and industry.

*Information:* This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring/Summer**DAR 226 DeskTop Publishing for Communication Graphics: Adobe InDesign /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 051, 120, or experience in computer graphics.

Design and creation of publications on a personal computer system. Includes current Adobe InDesign software documents, computer graphics hardware, and professional environment.

*Offered:* Fall/Spring**DAR 227 DeskTop Graphics: Corel Draw /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 051 or 120.

Computer generated graphics and illustrations. Includes current software, documents, computer graphics hardware, and professional environment.

*Will not be offered this year***DAR 230 Production Techniques for Print /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 221 or concurrent enrollment, and 121 or 220 or 226, and 122 or 123.

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.

*Offered:* Fall/Spring**DAR 240 Digital/Traditional Illustration and Cartooning III /4 cr. hrs./ 5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 145.

Continuation of DAR 145 at the advanced level. Includes advanced loose style drawing, advanced digital and traditional drawing and painting, advanced media development, advanced concept ideas, advanced composition rendering, advanced personal style development, pre-press applications, portfolio, and professional environment.

*Offered:* Fall/Spring/Summer



**DAR 242 Airbrush Techniques II /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 142.

Continuation of DAR 142. Includes airbrush operation, color, illustration, and professional environment.

*Will not be offered this year***DAR 243 Airbrush Techniques III /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 242.

Continuation of DAR 242. Includes additional applications, retouching, style, illustrations, and professional environment.

*Will not be offered this year***DAR 244 Airbrush Techniques IV /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 243.

Continuation of DAR 243. Includes specialization, techniques, and professional environment.

*Will not be offered this year***DAR 250 Computer 2D Animation: Adobe After Effects /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 221 or 223 or experience in computer graphics.

Animation on the computer. Includes storyboards, techniques and terms logo animation, character animation, metamorphic animation, and production techniques.

*Offered: Fall***DAR 251 Computer 3D Animation /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 122.

Solid modeling on the computer. Includes menus, image creation, color, printing, precision model making, object creation and design, and compatibility.

*Offered: Spring***DAR 252 Computer Multimedia Design I /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 051 or 120, or experience in computer graphics.

Computer interactive multimedia authoring. Includes current Macromedia director software, graphics, text, animation, sound, authoring, and outputting methods.

*Offered: Fall/Spring***DAR 253 Digital Video with Premiere /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 221 or experience in computer graphics.

Design and creation of digital video on a personal computer using current Adobe Premier software. Includes terminology and techniques, editing, special effects, and production within a professional environment.

*Offered: Fall/Spring***DAR 254 Computer Multimedia Design II /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 252.

Continuation of DAR 252. Includes multimedia formats and components, creation processes, production processes, business and legal considerations, and marketing and distribution.

*Offered: Fall/Spring***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, video taping, editing, music, special effects, and legal considerations.

*Information:* Does not include the technical aspects of television production which are covered in DAR 125 and 225.*Offered: Fall/Spring/Summer***DAR 256 Web Design /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 122, 221.

Design and production of graphics for the World Wide Web. Includes introduction to the World Wide Web, hardware, software (browsers), hypertext mark-up language (HTML), home pages, links, uploading, multimedia, and Web sites.

*Offered: Fall/Spring***DAR 257 Advanced Web Design /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 221, 256.

Advanced design and production of web sites and home pages. Includes planning and management, user interface, design, multimedia, careers in World Wide Web, and Web education.

*Offered: Fall/Spring***DAR 258 Advanced Computer 3D Animation /4 cr. hrs./5 periods (3 lec., 2 lab)***Prerequisite(s):* DAR 251.

Advanced modeling, rendering and animation utilizing high-end character 3D software. Includes a review of 3D basics, advanced modeling, anima-

tion, and surfacing techniques, advanced lighting and camera effects, and kinematics and contortions.

*Offered: Fall/Spring/Summer***DAR 260 PageMaker Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Computer generated text and graphics for brochures and business packages. Includes DeskTop environment, PageMaker software, and creating and printing a document.

*Offered: Fall/Spring/Summer***DAR 261 Adobe Illustrator Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Computer generated text and graphics for illustration. Includes Macintosh environment, scanning, illustration software, and techniques and procedures.

*Offered: Fall/Spring***DAR 262 QuarkXpress Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Computer generated text and graphics for publication. Includes DeskTop environment, QuarkXpress software, and creating and printing a document.

*Offered: Fall/Spring/Summer***DAR 263 Adobe PhotoShop Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Digital photograph manipulation in Adobe PhotoShop. Includes digital photographs, placing photographs, tools and palette, color manipulation, and output.

*Offered: Fall/Spring***DAR 264 Macromedia Freehand Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Computer generated graphics and text for illustration. Includes Macintosh environment, scanning an image, illustration software (Macromedia Freehand), creating and printing an illustration, and professional environment.

*Will not be offered this year***DAR 265 Beginning Web Design Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh and computer graphics experience.

Design and production of graphics for the World Wide Web. Includes introduction to the World Wide Web, hardware, software, hypertext mark-up language (HTML), home pages, links, and uploading.

*Offered: Fall/Spring***DAR 266 Macromedia Director Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Design of interactive computer presentations for training, selling, information, and entertaining. Includes creating original art, presentations, interactivity, and importing and outputting.

*Offered: Fall/Spring***DAR 267 Adobe Premiere Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Design and produce computer graphics for video. Includes digitalizing video, editing, special effects, and outputting to video and computer formats.

*Offered: Fall/Spring***DAR 268 Adobe After Effects Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Basic Macintosh skill required.

Composite of animations, photos, and videos into presentations. Includes keyframe animation, composing files for productions, special effects, and outputting to video and computer formats.

*Offered: Fall/Spring***DAR 269 Advanced Web Design Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* DAR 265 or web design experience.

Continuation of DAR 265. Includes user interface, review of JAVA, Dynamic HTML, and XML for graphics and web design.

*Offered: Fall/Spring*

**DAR 270 Adobe PhotoShop Tips and Tricks Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* DAR 221 or 263 or experience with Adobe PhotoShop. Computer retouching and manipulation of photos and illustrations. Includes current Adobe PhotoShop software, effects, hardware, and professional environment.

*Offered:* Fall/Spring/Summer

**DAR 271 DeskTop Pre-press Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* DAR 122 or 261, 220 or 262, 221 or 263, or experience using QuarkXpress, Illustrator and PhotoShop. 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.

*Offered:* Fall/Spring

**DAR 272 Advanced Adobe PhotoShop Seminar on the Macintosh /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* DAR 221 or 263 or experience with Adobe PhotoShop. Computer generated graphics and illustrations. Includes current software, documents, computer graphics hardware, and professional environment.

*Offered:* Fall/Spring

**DAR 275 Basic Audio Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* DAR 124.

Fundamental tools, techniques, and procedures for multi-track recording. Includes application to film, television, radio, and the recording industry. Also includes using multi-track recording and mixing techniques to produce original production soundtracks.

*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)**

*Prerequisite(s):* DAR 275.

Production of audio for film, television, radio, and the recording industry. Includes utilization of professional audio equipment on location as well as in studio operation. Also includes post-production of audio for film and video, and audio production for special problems in the arts, education, and industry.

*Information:* This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring/Summer

**DAR 277 Film/Video Production Financing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DAR 124.

Strategies for production financing for independent film/video projects. Includes positioning media projects in the marketplace, writing fundable proposals, and identifying funding sources. Also includes developing a prospectus for a media project.

*Offered:* Fall/Spring

**DAR 281 News and Feature Program Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* DAR 225.

Techniques and procedures involved in producing television news feature programs for cable casting or broadcasting. Includes procedures, cameras, lenses, audio, and graphics for infield productions. Also includes lighting, visual expression, producing, directing, interviewing techniques, and the completion of three, thirty-minute news/feature video programs for cable casting.

*Offered:* Fall/Spring/Summer

**DAR 285 Documentary Television and Film Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* DAR 215, 225.

Fundamentals of nonfiction film/video production. Includes script writing, research techniques, camera, lenses, audio approach, recording techniques, working methods, and production problems. Also includes the production of a television documentary.

*Information:* This course will require additional expenses for supplies in addition to course and lab fees.

*Offered:* Fall/Spring

**DAR 290A Industry Experience in Presswork /3 cr. hrs./15 periods (15 lab.)**

*Prerequisite(s):* DAR 216.

Work experience on offset presses. Includes large format presses and automated presses.

*Offered:* Fall/Spring/Summer

**DAR 290B Digital Arts Internship /3 cr. hrs./15 periods (15 lab)**

*Prerequisite(s):* Twelve (12) credit hours of DAR courses and consent of instructor.

Work environment in digital and film arts. Includes interpersonal communication, professional development, employment strategies, and field experience.

*Offered:* Fall/Spring/Summer

**DAR 296 Digital Arts Independent Projects /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring

**DAR 296 I1 Digital Arts Independent Projects: Design /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring/Summer

**DAR 296 I2 Digital Arts Independent Projects: Illustration /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring/Summer

**DAR 296 I3 Digital Arts Independent Projects: DeskTop Publishing /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring/Summer

**DAR 296 I4 Digital Arts Independent Projects: Computer Art /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring/Summer

**DAR 296 I5 Digital Arts Independent Projects: Cartooning /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring/Summer

**DAR 296 I6 Digital Arts Independent Projects: Airbrush /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Will not be offered this year*

**DAR 296 I7 Digital Arts Independent Projects: Offset Production /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring/Summer

**DAR 296 I8 Digital Arts Independent Projects: Advanced Media Projects /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring/Summer

**DAR 297 Digital Arts Seminar /1-25-4 cr. hrs./1-25-4 periods (.25-4 lec.)**

*Prerequisite(s):* Consent of instructor.

Communication graphics job related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered:* Fall/Spring

**DAR 299 Co-op Related Class in DAR /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* DAR 199.

*Corequisite(s):* Concurrent enrollment in DAR 299WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring/Summer

**DAR 299WK Co-op Work in DAR /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s):* DAR 199WK.

*Corequisite(s):* Concurrent enrollment in DAR 299 Co-op Related Class.

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring/Summer

**EARLY CHILDHOOD EDUCATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ECE 106 The Growing Years /3 cr. hrs./3 periods (3 lec.)**

Examination of forces which shape the growing child. Includes the interplay of biological factors, human interaction and social structure from earliest womb environment into adolescence.

*Offered:* Fall/Spring/Summer

**ECE 107 Human Development and Relations /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* REA 112 or concurrent enrollment.

Analysis of the elements that affect growth and development throughout the life span. Includes theories and issues, prenatal development and birth, infancy and early childhood, middle childhood, adolescence, young adulthood, late adulthood, death, and communities and human development.

*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 incorporating an appreciation of other cultures, and planning and implementing developmentally appropriate activities.

*Offered:* Fall/Summer

**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 principles, methods, and current teaching techniques. Also includes an examination of cultural diversity, instructional material, assessments, and computer technology.

***Offered:* Fall/Spring/Summer ECE 111 Special Education for Children /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* REA 112 or concurrent enrollment, and WRT 100.

History, philosophy, and current trends in special education. Includes identification and characteristics of children with special needs, assessment procedures, referral services, and available resources. Also includes the role of the teachers, parent(s), and family in effecting appropriate instructional techniques and environmental modifications.

*Offered:* Fall/Spring/Summer

**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 planning, implementing, and evaluating developmentally appropriate activities. Also includes a compilation of resource materials.

*Offered:* Fall

**ECE 114 Effective Parenthood /3 cr. hrs./3 periods (3 lec.)**

Identification and discussion of determinants of positive child rearing practices. Includes physical, cognitive, personality, and moral development. Also includes parenting skills and positive guidance techniques for conflict resolution and effective interpersonal relationships.

*Offered:* Spring

**ECE 117 Child Growth and Development /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* REA 112 or concurrent enrollment, and WRT 100.

Analysis of concepts and issues in growth and development of children. Includes prenatal factors, the birth process, and determinants of physical, cognitive, social, cultural, emotional, and moral development through adolescence.

*Offered:* Fall/Spring/Summer

**ECE 120 Supervision and Administration of Early Childhood Programs /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 082, REA 112, WRT 100.

Analysis of elements for planning, implementing, maintaining, and evaluating early childhood education programs. Includes regulations, health and safety issues, and staff selection, development, and supervision. Also includes management of facilities, budget, equipment, supplies, and arranging environment.

*Offered:* Spring

**ECE 124 Math and Science for Children /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 082.

Theories, methods, and techniques for teaching math and science. Includes selection, development, and presentation of instructional materials with an integrated curriculum approach. Also includes computer applications.

*Offered:* Fall/Spring/Summer

**ECE 125 Nutrition, Health, and Safety for the Young Child /3 cr. hrs./5 periods (2 lec., 3 lab)**

In-depth study of the health, safety and nutritional needs of children. Includes feeding and growth, feeding and health practices, planning and serving food to children, food safety: principles to practice, menus, environmental concerns, nutrition and wellness, nutrition and health activities for children, preventing accidents, wellness issues in the center, and nutrition, health and safety programs in the community.

*Offered:* Fall

**ECE 126 has been modified. It is now ECE 226****ECE 127 Computers in Primary and Early Childhood Education /3 cr. hrs./3 periods (3 lec.)**

Integrating computers into primary and early childhood educational classrooms. Includes the effect of computers on young children's development, selecting software using evaluation systems, evaluating software with developmental scales, introducing children to computers, teaching strategies to integrate computers into the curriculum, utilizing computers to promote an anti-bias curriculum, selecting anti-bias software, communicating with parents, connecting with the community, and networking across the globe.

*Offered:* Spring

**ECE 128 Preschool and Child Care /3 cr. hrs./3 periods (3 lec.)**

Examination and acquisition of competencies required by child care personnel in educating and caring for infants, toddlers, and preschoolers in early childhood programs. Includes observing and recording, age-appropriate activities, discipline, problem-solving, health and safety, guiding language and action, special needs, cultural awareness, and essential curricula. Also includes a supervised field project.

*Offered:* Fall

**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 principles of sensory motor awareness, memory permanence, cognitive development, concept formation and problem solving. Students observe, investigate, plan, and demonstrate developmentally appropriate curriculum and guidance practices.

*Offered:* Fall/Spring/Summer

**ECE 130 School-Age Child Care and Program Development /3 cr. hrs./3 periods (3 lec.)**

Examination of child care programs for school-age children, including before and after school care, full day and recreational programs. Encompasses activities, leadership program planning, discipline, safety, problem solving, ethics, standards, cultural awareness, special needs, partnership, resources, supervising staff, and marketing. Also includes a supervised field experience project.

*Will not be offered this year*

**ECE 190 Beginning Level Internship in Early Childhood Education /3 cr. hrs./11 periods (1 lec., 10 lab)**

*Recommendation:* Consent of Instructor.

Internship designed for students completing first year of Early Childhood Education program. Includes professional documentation of work in early education settings, promoting positive classroom relationships and self-discipline in children, using principles of learning and teaching, organizing space, materials, time, and children's groups, and appropriate practices in early childhood settings.

*Offered:* Fall/Spring/Summer

**ECE 199 Co-op Related Class in ECE /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in ECE 199WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*



**ECE 199WK Co-op Work in ECE /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in ECE 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*Will not be offered this year*

**ECE 226 Teaching Techniques and Behavior Management /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* REA 112 or concurrent enrollment, and WRT 100.

Introduction to theory and application of early childhood classroom planning, guidance techniques and classroom management. Includes observation techniques, understanding and guiding behavior, skills-streaming in early childhood, parents as partners in education, creating environments, evaluating for effectiveness, planning for play, physical and motor development, cognitive and language, social, emotional, and creative growth, and issues and trends in early childhood education.

*Information:* Also includes a 22-hour practicum.

*Offered:* Spring

**ECE 242 Games and Activities for Children /3 cr. hrs./3 periods (3 lec.)**

Examination of effective teaching and guidance practices with children in games and sports activities. Includes an introduction to children and physical activity, developing and planning a physical activity program, effective classroom management, teaching styles and methods (basics), legal liability and proper care of students, specific types of games and activities, evaluating the appropriateness of games, participation in various games and activities, variety of spontaneous and planned activities, environment, observation, practice teaching and guidance, fine motor activities, and special needs.

*Offered:* Spring

**ECE 290 Advanced Level Internship in Early Childhood Education / 3 cr. hrs./11 periods (1 lec., 10 lab)**

*Recommendation:* Consent of Instructor.

Internship designed for students completing second year of Early Childhood Education program. Includes enhancing professional documentation, promoting positive classroom relationships and self-discipline in children, principles of successful learning and teaching, designing an effective thematic unit plan, developing and implementing group projects, and appropriate practices in early childhood settings.

*Offered:* Fall/Spring/Summer

**ECE 291 Internship for Students with Experience in Early Childhood Education /4 cr. hrs./16 periods (1 lec., 15 lab)**

*Recommendation:* Consent of Instructor.

Internship to support students, currently working in an educational setting, in increasing their professional knowledge by observing, doing, inquiring, and reflecting on teaching and learning. Includes developing a personal view of teaching, education history and philosophy, current trends in education, legal and ethical issues in education, status of contemporary children, exploring classroom learning theory, establishing a successful classroom environment, teaching and lesson planning, teacher as educational leader, and collaborating with families, businesses, and the community.

*Offered:* Spring

**ECE 296 Independent Studies in Early Childhood Education / 3 cr. hrs. 3 periods (3 lec.)**

*Prerequisite(s):* Consent of instructor.

Students independently continue their development in Early Childhood Education under the guidance of a faculty member.

*Information:* May be taken two times for a maximum of six credit hours.

*Offered:* Summer

**ECE 299 Co-op Related Class in ECE /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in ECE 299WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**ECE 299WK Co-op Work in ECE /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in ECE 299 Co-op Related Class.

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Will not be offered this year*

**ECONOMICS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ECN 200 Basic Economic Principles /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 092.

Economic theory as applied to individual decision-making units (microeconomics) and as applied to the operation of the economy as a whole (macroeconomics). Includes economic decision making, economic systems, supply and demand model, price determination, elasticity, household income, business ownership, profit maximization, production functions and costs, and competition and market structures. Also includes goals and problems of the macroeconomy, foundations of the macroeconomy, fiscal policy and budgets, money, the role of financial institutions and the Federal Reserve, money creation, and monetary theory and policy.

*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 /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 092.

Economic theory as applied to individual decision-making units. Includes economic decision making, economic systems, consumer demand, producer supply, price determination, elasticity, cost-benefit analysis, and utility and profit maximization. Also includes production functions and costs, competition and market structures, government in the market economy, labor markets, and income distribution.

*Offered:* Fall/Spring/Summer

**ECN 202 Macroeconomic Principles /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 092.

Economic theory as applied to the operation of the economy as a whole. Includes economic decision making, economic systems, supply and demand model, goals and problems of the macroeconomy, foundations of the macroeconomy, fiscal policy and budgets, money, the role of financial institutions and the Federal Reserve, money creation, monetary theory and policy, the assessment of goals, tools and policies of macroeconomics, and international trade.

*Offered:* Fall/Spring/Summer



## EDUCATION

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**EDU 100 Principles of Bilingual Education /3 cr. hrs./3 periods (3 lec.)**  
Examination of basic principles of bilingual education. Includes philosophy, history, rationale, legislation and models.

*Offered: Fall/Spring/Summer*

**EDU 101 Introduction to Bilingual Elementary Education /3 cr. hrs./3 periods (3 lec.)**

Introduction to prospective teachers, to the personal, social, institutional, and instructional issues relevant to teaching in general and bilingual education in particular. Includes engagement in pre-professional activities including autobiographical reflections, reading, discussing, and responding to relevant professional literature, observing in a bilingual education classroom, and reflecting on class presentations and interviews of parents, teachers, administrators, resource personnel, and students.

*Offered: Fall/Spring/Summer*

**EDU 103 Teaching Students with Attention Deficit Disorder/Attention Deficit Hyper-activity Disorder (ADD/ADHD) /1 cr. hr./1 period (1 lec.)**  
Strategies for working with children with attention difficulties. Includes overview of ADD/ADHD, diagnostic procedures, most common treatments, laws pertaining to servicing ADD/ADHD, strategies for the classroom, and overview of resources and organizations.

*Offered: Fall/Spring/Summer*

**EDU 104 Teaching Mathematics Through Problem Solving I for K-8 /2 cr. hrs./2 periods (2 lec.)**

Study of mathematics teaching in grades kindergarten through eight. Includes techniques for developing mathematical concepts and skills. Also includes the teaching of problem solving in all areas of the elementary mathematics curriculum.

*Will not be offered this year*

**EDU 108 Music, Art, and Drama for School-Age Child Care /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Consent of instructor.*

Examination of principles, techniques, and resources for creating age-appropriate projects and activities in music, art, and drama. Includes multiculturalism and social skills.

*Will not be offered this year*

**EDU 109 Language, Arts, Science, and Math for School-Age Child Care /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Consent of instructor.*

Synthesis of principles for development of age-appropriate multidisciplinary activities. Includes the evaluation of commercially produced programs and software.

*Offered: Fall/Spring/Summer*

**EDU 125 Design and Delivery of Instruction for the 21st Century / .5-3 cr. hrs./5-3 periods (.5-3 lec.)**

*Prerequisite(s): Consent of instructor.*

Fundamentals of instructional design applied to teaching students in traditional or non-traditional time formats and delivery systems. Includes the following individual modules: Designing Good Instruction, Using Visuals to Improve Instruction, Improving Vocal Performance, Using Interactive, Participatory Techniques, Teaching and Learning Styles, Using the Internet for Instruction, Developing Graphics for the Web, Using Multimedia for Instruction, Introduction to PowerPoint, Introduction to ToolBook, Using the Interactive Classroom, and Designing an Independent Learning Package.

*Will not be offered this year*

**EDU 129 How to Write Competitive Grant Proposals /5-3 cr. hrs./5-3 periods (.5-3 lec.)**

Strategies to develop effective, competitive grant proposals. Includes identifying and qualifying funding sources, interpreting and utilizing the funding agency's solicitations, developing the proposal format, and writing the proposal narrative.

*Offered: Spring*

**EDU 130 Legal Issues in Education /1-3 cr. hrs./1-3 periods (1-3 lec.)**

Introduction to legal issues in an educational environment for students, teachers, and staff. Includes Affirmative Action (AA), Equal Employment Opportunity (EEO), Americans with Disabilities Act (ADA), and sexual harassment legal concepts, the rights of students, staff, and teachers, identifying and defining situations, forms of discrimination, techniques to prevent discrimination and sexual harassment, strategies to increase awareness, confidentiality and Right-to-Know, and internal and external processes.

*Offered: Fall/Spring/Summer*

**EDU 134 Survival Strategies for the Substitute Teacher /1 cr. hr./1 period (1 lec.)**

Techniques to prepare substitute teachers for the tasks they face in elementary, middle school and high school classrooms. Includes classroom management, interpreting and implementing lesson plans, and district procedures and policies.

*Offered: Summer*

**EDU 135 Math Applications Across the Curriculum for Instructors of K-8 /1 cr. hr./1 period (1 lec.)**

Applying mathematical concepts to non-mathematical disciplines for grades K-8. Includes classroom management, curriculum in the classroom and the teacher as a learner.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**EDU 141 Techniques for Teaching Science K-12 /2 cr. hrs./3 periods (2 lec., 1 lab)**

Techniques for teaching a classroom unit in science for the classroom instructor. Includes lab techniques and strategies, projects appropriate to grade level, utilizing resources in the community, preparing laboratory apparatus, introduction to computers and laboratory software, developing instructional strategies, interpreting results, and implementing ideas for classroom instruction.

*Will not be offered this year*

**EDU 161 The Arizona Community College: A Learning Institution /3 cr. hrs./3 periods (3 lec.)**

Introduction to the Arizona community college system. Includes history, mission, governance, organization, finance, curriculum, and current challenges. Also includes student characteristics and support services, faculty characteristics, support services, roles, responsibilities and evaluation, and an introduction to teaching, earning and assessment in the community college.

*Offered: Fall/Spring/Summer*

**EDU 161A Overview of the Community College /1 cr. hr./1 period (1 lec.)**

Introduction to the Arizona community college system. Includes history, mission, governance, organization, finance, curriculum and current challenges.

*Offered: Fall/Spring/Summer*

**EDU 161B Community College Students and Faculty /1 cr. hr./1 period (1 lec.)**

An overview of community college students and faculty. Includes national and local profiles and characteristics. Also includes the role of student development and support services, faculty characteristics, support services, roles, responsibilities and evaluation.

*Offered: Fall/Spring/Summer*

**EDU 161C Teaching and Learning in the Community College /1 cr. hr./1 period (1 lec.)**

An introduction to teaching, learning, and assessment of students and student learning outcomes as currently practiced in community colleges.

*Offered: Fall/Spring/Summer*

**EDU 170 Developing an Independent Learning Package /25-1 cr. hr./25-1 period (.25-1 lec.)**

Design and development of an independent learning package (ILP) as an alternative distance delivery system for instruction. Includes rationale, standards, components, step-by-step guide, and a template for development of new modules/courses in this mode.

*Will not be offered this year*

**EDU 173 Teaching and Learning Styles / .25-1 cr. hr./ .25-1 period (.25-1 lec.)**

Introduction to the ways teachers present and learners process learning or instructional materials. Includes overview and perspective of learning styles, major theories, applications to instruction, assessment of individual teaching and learning styles.

*Offered: Fall/Spring/Summer*

**EDU 175 Using Questions in the Classroom / .25-1 cr. hr./ .25-1 period (.25-1 lec.)**

Using questions to improve student understanding and learning in a classroom environment. Includes Socratic dialogue, reasons for asking questions, levels and types of questions, and questioning strategies. Also includes ways to improve classroom questions and student responses.

*Will not be offered this year*

**EDU 177 Motivating Students / .25-1 cr. hr./ .25-1 period (.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.

*Offered: Fall/Spring/Summer*

**EDU 179 Characteristics of Good Instruction / .25-1 cr. hr./ .25-1 period (.25-1 lec.)**

New instructional paradigm for design and delivery of instruction. Includes pragmatic definition of student-centered, competency-based, modularized, and individualized instruction. Also includes information on inclusion of assessment, metacognitive and student support components, and application of research-based pedagogy and appropriate technology to deliver instruction.

*Will not be offered this year*

**EDU 200 Introduction to Education / 3 cr. hrs./ 3 periods (3 lec.)**

*Recommendation: REA 112 or concurrent enrollment, and WRT 100*

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 a 10-hour field work experience.

*Offered: Fall/Spring/Summer*

**EDU 201 Diversity in Education / 3 cr. hr./ 3 period (3 lec.)**

Examination of diversity: age, class, gender, race, disabilities, sexual orientation, and culture effect on the K-12 classroom. Exploration of diversity in 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:* This class requires a 10-hour field work experience

*Offered: Fall/Spring/Summer*

**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 considerations 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:* This class requires a 10-hour field work experience.

*Offered: Fall/Spring/Summer*

**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. This class requires a 10-hour field work experience.

*Offered: Fall/Spring/Summer*

**EDU 210 Visual Aids and Games for Effective Instruction / 1-3 cr. hrs./ 1-3 periods (1-3 lec.)**

Creating and using visual aids and games for effective instruction for K-12 teachers. Includes philosophy of teaching using games and creative arts, education plans in selected subject areas, manufactured materials and games that enhance teaching, methods of instruction with games and visuals, and program management.

*Offered: 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.

*Offered: Summer*

**EDU 212 Integrating Art into the Elementary Mathematics Curriculum / 1-3 cr. hrs./ 1-3 periods (1-3 lec.)**

Introduction to various art activities that integrate with elementary education mathematics instruction. Includes the identification of the basic elements, principles, related concepts and vocabulary of both the creative arts and mathematics. Also includes an introduction to various media, lesson planning and alternative assessment techniques.

*Will not be offered this year*

**EDU 213 Techniques and Strategies for Teaching Poetry / 1-3 cr. hrs./ 1-3 periods (1-3 lec.)**

An introduction to teaching poetry for K-12 teachers. Includes instructional activities and strategies for teaching children to understand, read, and write poetry. Also includes the use of instructional materials and activities to develop children's appreciation of poetry and to overcome problems encountered in teaching poetry.

*Will not be offered this year*

**EDU 220 Legal Issues Related to Caring for School Age Children / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Legal parameters of responsibility for personnel who must provide care for school age children. Includes cover concepts of negligence, documentation, state law and case law.

*Will not be offered this year*

**EDU 221 Effective Communication for Leaders / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Training that demonstrates the relationship between acquired behavioral styles and effective communication skills while in a leadership role. Includes techniques to employ when under stress, in competition, or when influencing others.

*Will not be offered this year*

**EDU 222 Children's Literature for Elementary Teachers / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Exploring children's literature for elementary teachers. Includes importance of reading, history of literature, literature for social studies, uses of literature for children, and selection of literature and assessment.

*Will not be offered this year*

**EDU 223 Motivate Writing in the Classroom / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Activities to motivate writing for the K-12 classroom. Includes overview, pre-writes and fast writes, games to motivate students, general activities using the newspaper, celebrating the completed project, teacher-to-teacher networking activities, and feedback and resources available.

*Offered: Summer*

**EDU 224 Brain Research Implications for Learning / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Strategies to enhance learning through brain research. Includes brain functioning environments for optimum learning, role of emotions in learning, how the brain functions best, and mind and brain principles.

*Offered: Fall/Summer*

**EDU 225 Multiple Intelligences / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Exploration of brain theory and its implications for teaching. Includes parts of the brain, why multiple intelligences, Gardner's eight intelligences, lesson planning, application, and feedback and evaluation.

*Will not be offered this year*

**227 Introduction to Phonemic Awareness for K-3 / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Introduction to phonemic awareness, Includes defining phonemic awareness, research finding, developmental levels and examples of activities, training principles, and phonemic awareness activities.

*Will not be offered this year*

**EDU 229 Six Traits-Six Points Rubric / .25-3 cr. hrs./ .25-3 periods (.25-3 lec.)**

Introduction to the newly adopted Arizona six point-six traits rubric. Includes lesson ideas to use with students to teach and practice each of the six traits, as well as an opportunity to score several papers using the rubric.

*Offered: Fall*

**EDU 230 Creating an Integrated Curriculum / .25-3 cr. hrs./25-3 periods (.25-3 lec.)**

Techniques for creating an integrated curriculum. Includes philosophy, theories, models of an integrated curriculum, and the process to develop the curriculum.  
*Will not be offered this year*

**EDU 236 Positive Classroom Management / 1 cr. hr./1 period (1 lec.)**

Techniques for implementing a positive classroom environment. Includes philosophy, management theories, models of management, and the process to develop a positive style.

*Offered: Fall/Spring/Summer*

**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, psychosocial problems; teen suicide, delinquency, and substance abuse. Also, includes ethnic and cultural considerations in addition to educational and vocational issues.

*Information:* This class requires a 10-hour practicum.

*Offered: Fall/Spring/Summer*

**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:* This class requires a 10-hour practicum.

*Offered: Fall/Summer*

**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:* This course requires a 30-hour middle school practicum placement and 15 hours of workshop/lecture.

*Offered: Fall/Summer*

**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 teaching techniques and actual experience in developing lessons and teaching ELL's.

*Information:* This class requires a 30-hour ESL K-12 practicum and 15-hours of workshop/lecture.

*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 English as a Second Language (ESL) settings. Includes teaching techniques, learning strategies and activities, the six traits of writing, including reading and writing across the curriculum.

*Information:* This course includes a 10-hour practicum.

*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:* This class requires a 10-hour practicum.

*Offered: Spring*

**EDU 246 Assessment of ESL Students / 3 cr. hrs./3 periods (3 lec.)**

Introduction to the assessment of ESL students: knowledge of assessment, purposes of assessment, identification, placement, and exit standards for students, linking assessment to instruction, and creating classroom assessments.

*Information:* This course requires a 10-hour practicum.

*Offered: Fall*

**EDU 247 Family/Community Involvement in ESL Student Instruction / 3 cr. hrs./3 periods (3 lec.)**

Introduction to parental, school and community involvement in the instruction of ESL students. Also, includes research on the value of family/school connections, an overview of effective programs, analysis of practices and resources available and information on how develop a plan of action for a school.

*Information:* This class requires a 10-hour practicum.

*Offered: Fall*

**EDU 252 Reading Diagnosis, Decoding and Remediation/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.

*Information:* This class requires a 10-hour practicum.

*Offered: Fall*

**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. Topics include: literacy and language development theories; observation and assessment; family literacy; strategies for teaching and motivation and management.

*Information:* This class requires a 10-hour practicum.

*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:* This class requires a 10-hour practicum.

*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 the development and implementation of strategic reading groups.

*Information:* This class requires a 10-hour practicum.

*Offered: Fall*

**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:* This class requires a 10-hour practicum.

*Will not be offered this year*

**EDU 261 Introduction to Rehabilitation Services / 3 cr. hrs./3 periods (3 lec.)**

Introduction to disability and rehabilitation services. Includes issues faced by persons experiencing disability, the rehabilitation delivery system, vocational rehabilitation outcomes, interpersonal communication skills, consumer involvement and self management, and ethics and professionalism. Also includes issues on environmental barriers and solutions.

*Information:* Same as SSE 261

*Will not be offered this year*

**EDU 262 Assistive Technology for Individuals with Disabilities / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* EDU 261

Study of assistive technology devices, products and applications techniques. Includes overview assistive technology, special adaptive needs, basic computer skills, assessment practices and ethical consideration. Assistive equipment, positioning and seating technology, programming processor controlled augmentative communication devices, accessibility of environment, using software applications, adapting activities to available equipment, adapting computers to specific needs, using the internet as a resources guide, evaluating equipment, and developing/adapting low-and-mid-tech devices to meet specific needs.

*Information:* Same as SSE 262.

*Will not be offered this year*

**EDU 268 Issues in Education / 1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Admission to the advanced certificate program in teacher education. Special topics in education with an emphasis on current issues not covered in education courses.

*Offered: Fall/Spring/Summer*



**EDU 269 Balanced Approach to Literacy/Practicum /3 cr. hrs./ 3 periods (3 lec.)**

Introduction to literacy development for pre-service teachers for pre-kindergarten through middle school children. Includes pre-kindergarten through third grade teachers: learning environments, assessment, selection and use of text, strategies and high quality classroom instruction. Includes fourth through eighth grade teachers independent reading, guided reading, and classroom instruction.

*Information:* This class requires a 10-hour practicum.

*Offered:* Spring

**EDU 270 Educational Technology and Curriculum Integration / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Department approval.

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.

*Offered:* Fall

**EDU 271 Introduction to Teaching /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Department approval.

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. Includes social models of teaching and learning, information processing models, personal models, behavioral models, synthesizing and applying models of teaching, lessons and assessments using various models, teaching as a profession, and methods for increasing instructional effectiveness.

*Offered:* Fall/Spring/Summer

**EDU 272 Educational Psychology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Department approval.

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.

*Offered:* Fall/Spring/Summer

**EDU 273 Introduction to Special Education /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Department approval.

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.

*Offered:* Spring

**EDU 274 English as a Second Language Foundation /3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s):* Department approval.

Introduction to the historical, legal, theoretical and sociological context of programs serving students with a non-English language background. Includes historical foundations of English as a second language programs, socio-cultural factors, minority language students, second language acquisition and portfolios.

*Offered:* Spring

**EDU 275 Classroom Management /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Department approval.

Introduction to assisting students to master the knowledge and skills necessary to create and maintain a positive classroom environment. Includes overview of classroom management, students' basic needs, creating positive interpersonal relationships, creating positive peer relationships, working with parents and student motivation and learning. Also includes developing standards for classroom behavior, responding to violations of rules and procedures, using problem solving techniques, developing individual behavior plans, and school-wide student management programs.

*Offered:* Summer

**EDU 276 Foundations of Reading Instruction /3 cr. hrs./3 periods (3 lec.)**

Literacy instruction at the elementary school level topics include: literacy development theory; literacy development at the preschool, early childhood and intermediate grade levels; instruction techniques for all facets of literacy development; comprehension strategies including bilingual learners and special populations. Focus is on organizing classroom and curriculum to enhance literacy development and techniques and assessment as tools for

instruction and working with parents to enhance student achievement.

*Information:* This class requires a 15-hour field work experience.

*Offered:* Fall

**EDU 277 Phonics Instruction in the Balanced Literacy Setting/Practicum /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Admission to the advanced certificate program in teacher education.

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:* This class requires a 15-hour practicum.

*Offered:* Fall

**EDU 278 Elementary Science Methods and Curriculum /3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s):* Admission to the advanced certificate program in teacher education.

Overview of the content and instructional methods of teaching science in grades kindergarten through eighth. Includes the academic content of teaching science, the instructional methods of teaching science, practical application, and observation and evaluation.

*Offered:* Fall

**EDU 279 Elementary Math Methods and Curriculum Development / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Admission to the advanced certificate program in teacher education.

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.

*Offered:* Spring

**EDU 280 Social Studies Methods and Curriculum Development / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Admission to the advanced certificate program in teacher education.

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.

*Offered:* Spring

**EDU 281 ESL Methods and Curriculum Development /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Admission to the advanced certificate program in teacher education.

Introduction to English as a second language methods and curriculum development to prepare preservice teachers to assess the language proficiency of ELL/ESL students. Includes introduction to ESL education, language acquisition theory, ESL pedagogical strategies and techniques for ESL lesson planning.

*Offered:* Spring/Summer

**EDU 282 Science Methods in the Secondary Classroom /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Admission to the advanced certificate program in teacher education.

Overview to the prospective secondary science teacher with the theoretical background on the nature of science, the teaching of science and the materials and methods used to teach science. Includes the multicultural view of science, understanding scientific paradigms and scientific revolutions, comparison of standards, textbooks, lab books, Internet and other resources for teaching science and issues of safety, ethics, controversy and legality in lectures and labs. Also includes integrating lab and lessons, professional organizations for science teaching, constructivism and inquiry in the classroom, cooperative learning and creativity.

*Offered:* Fall

**EDU 283 Math Methods in the Secondary Classroom /3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite:* EDU(s): Admission to the advanced certificate program in teacher education.

Overview of the strategies for mathematics learning, emphasizing constructivist, hands-on methods for grades seven through twelve. Includes standards, resources, teaching math concepts, topics in math, math teaching aids, activity lessons, integrating mathematics lessons with other disciplines, and presenting a lesson.

*Offered:* Spring



**EDU 284 English/Language Arts Methods in the Secondary Classroom /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Admission to the advanced certificate program in teacher education.*

Introduction to a variety of instructional strategies pertinent to the teaching of Language Arts in the secondary schools. Includes the role and function of the secondary education language arts teacher, preparing for instruction, constructing lesson plans, teaching written expressions, teaching listening and viewing skills, teaching reading and vocabulary development, teaching researching and reporting, teaching public speaking skills, assessment, and classroom management.

*Offered: Spring*

**EDU 285 Secondary Teaching Methods /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Admission to the advanced certificate program in teacher education.*

Introduction to a variety of instructional, classroom management and assessment strategies pertinent to teaching in the secondary schools. Includes the role and function of the teacher in a secondary classroom setting, preparing for instruction, constructing lesson plans, assessment, instruction, classroom management, instructional media learning tools, and special needs students.

*Offered: Spring*

**EDU 290 Internship /8 cr. hrs./40 periods (40 lab)**

*Prerequisite(s): Admission to the advanced certificate program in teacher education.*

Overview of the student teaching experience in a nine week internship. Includes initial discussion, observation, assessing the learning environments, evaluating educational resources, long and short-term planning, mid-term evaluation, curriculum development and implementation and accommodation to individual needs. Also includes assessments, parent and community collaboration, portfolio completion, teamwork, and professional development and evaluation.

*Offered: Fall/Spring*

**EDUCATIONAL TECHNOLOGY TRAINING**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ETT 101 Introduction to Educational Technology /2 cr. hrs./2 periods (2 lec.)**

An introduction for educators in the use and maintenance of computer hardware, software and computer peripheral devices in an educational setting. Includes computer projection/display systems, accessing e-mail and files from the local network, educational technology issues and instructional management of activities.

*Offered: Fall/Spring/Summer*

**ETT 102 Introduction to Computer Applications in Education /3 cr. hrs./3 periods (3 lec.)**

Basic use of computer applications for educators. Includes files, folders, hard drive, floppy discs, software, issues related to the use of technology and multimedia in the classroom. Also includes use of word processing, spreadsheet, database and presentation programs, integrated office products (e-mail, calendar, task list), and quiz and grade book programs in an educational setting.

*Offered: Fall/Spring/Summer*

**ETT 103 Introduction to the Internet in Education /2 cr. hrs./2 periods (2 lec.)**

Introduction to educational topics related to the Internet. Includes Internet services, integrating World Wide Web resources into curriculum, filtering and copyright issues, distance learning, broadcast instruction, audio/video conferencing, structure and organization, access and usage problems and instructional management issues. Also includes Web searches, browsers, locating and downloading files, accessing electronic libraries, databases, and online learning materials in an educational setting.

*Offered: Fall/Spring/Summer*

**ETT 104 Teaching and Learning with Computer Applications /3 cr. hrs./3 periods (3 lec.)**

Introduction to software skills for educators. Includes learning materials using computer software applications, teaching and learning integration with computer applications, multimedia presentations with productivity tools, templates, forms and educational technology issues in an educational setting.

*Offered: Spring*

**ETT 105 Teaching and Learning with the Internet /3 cr. hrs./3 periods (3 lec.)**

An overview of advanced Web/Internet searching and indexing strategies for educators. Includes finding instructional resources, Internet communi-

cations, comparisons of Web browsers, evaluating resources, Internet/Web integration, educational issues, constructing Web pages, new technology issues and trends, Web pages and files on a Web server, educational technology issues and best practices in technology in an educational setting.

*Offered: Fall*

**ETT 106 Teaching and Learning with Multimedia /4 cr. hrs./4 periods (4 lec.)**

Introduction to the theory and practical application of instructional multimedia, multimedia design and production for educators. Includes multimedia elements, commercially produced technology-based programs, authoring, delivery systems, production and publishing, evaluation, rubrics and educational technology issues in an educational setting.

*Offered: Summer*

**ETT 107 Educational Technology Topics and Issues /2-4 cr. hrs./2-4 periods (2-4 lec.)**

Overview of special educational technology topics of interest to the educator. Includes video-based instruction, new educational technologies, advanced Web/Internet use, video creation and editing, technology usage and effectiveness, adaptive technology tools, tools for developmental education and commercially produced technology based programs in an educational setting.

*Offered: Spring*

**ETT 108 Educational Technology and Assessment /3 cr. hrs./3 periods (3 lec.)**

Overview of computer based systems in education to evaluate learning. Includes assessment of learning and technology, evaluation of instructional materials and resources and educational technology issues in an educational setting.

**ETT 109 Curriculum Integration with Technology /3 cr. hrs./3 periods (3 lec.)**

An overview for the educator of the use of technology to support all areas of the academic curriculum. Includes integration of technology into the curriculum, development of an integration lesson plan, tools to create curriculum ideas, writing and basic skills acquisition, enhancing problem solving and critical thinking, developing thematic lesson plans across disciplines, educational technology issues and the use of technology in an educational setting.

*Offered: Summer*

**ETT 110 Educational Technology Topic Web CT and Internet Use /2 cr. hrs./2 periods (2 lec.)**

Educational technology topics of interest to the educator. Includes advanced Web and Internet use, online course development, educational Web site development, and use of Web CT, an online course development and management system.

*Offered: Fall*

**ELECTRICAL UTILITIES TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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, and electrical utility disciplines.

*Will not be offered this year*

**EUT 102 Electrical Distribution /4 cr. hrs./6 periods (3 lec., 3 lab)**

Procedures for working in electrical distribution. Includes climbing equipment, pole setting, climb and work on poles, handlines, and personal protective grounding.

*Will not be offered this year*

**EUT 104 Overhead and Underground Systems, Hardware, and Equipment /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): EUT 102.*

Procedures for working in the overhead and underground. Includes pole hardware, overhead conductors, porcelain equipment, overhead transformers, and underground equipment.

*Will not be offered this year*

**EUT 105 Equipment Operations /2 cr. hrs./4 periods (1 lec., 3 lab)**

*Prerequisite(s): EUT 102.*

Procedures for operating electrical utility equipment. Includes pre- and post-trip inspection, hand signals, ten-foot rule, vehicle grounding, drivers log, boom and bucket trucks.

*Will not be offered this year*

**EUT 106 Measuring Electricity /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): EUT 101.*

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.

*Will not be offered this year***EUT 107 Substation Operations /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s): EUT 101.*

Equipment used in the transmission and distribution of electrical power. Includes substation components, substation types, substation voltages, and substation hazards.

*Will not be offered this year***EUT 108 Protective Relaying /4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s): EUT 101.*

Equipment used in the protection of transmission and distribution systems. Includes relay components, relay types, and relay maintenance techniques.

*Will not be offered this year***EUT 109 Electronic Equipment Operations /4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s): EUT 101, BCT 125.*

Communication techniques used in the electrical utility industry. Includes power systems operation, mobile radios, microwave systems, supervisory control and data acquisition equipment, and fundamentals of computer systems

*Will not be offered this year***EUT 110 Power Plant Operations /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s): EUT 101.*

Principles and procedures for the generation of electrical power. Includes power plant functions, steam cycle, basic electricity in power generation, basic chemistry in power generation, and emergency conditions and hazards.

*Will not be offered this year***EMERGENCY MEDICAL TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**\*EMT 070 has been re-numbered to EMT 105****EMT 100 Basic Emergency Medical Technology /9 cr. hrs./11 periods (8 lec., 3 lab)***Prerequisite(s): Students must be 18 years of age when class begins.*

*Students must have CPR certification at the Healthcare Provider or Professional Rescuer Level. Students must receive a minimum score of 80 on the College Reading Assessment test.*

Techniques of pre-hospital emergency medical care for the emergency medical technician. Includes symptoms of illnesses, injuries, medical emergencies, appropriate medical techniques, and ambulance operations.

*Information:* Students must be able to lift 125 lbs alone and 250 lbs with a partner. Students must show proof of personal medical insurance. Students must meet with an advisor or EMT staff/faculty to complete a pre-enrollment worksheet prior to enrollment.

*Offered: Fall/Spring/Summer***EMT 105 Basic Cardiac Life Support /5 cr. hrs./5 period (.5 lec.)**

Principles and techniques of basic cardiac life support. Includes techniques of airway care and cardiopulmonary resuscitation and common types of equipment used in basic cardiac life support. Also includes an introduction to the pathogenesis of coronary artery disease, electric shock, drowning and sudden death. The course is designed to train allied health personnel and other interested individuals. Upon course completion, the student will have completed requirements to be issued a Healthcare Provider CPR card through the American Heart Association.

*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.

*Offered: Fall/Spring/Summer***EMT 158 Transition Training for EMT /1.5 cr. hrs./2.5 periods (1 lec., 1.5 lab)***Prerequisite(s): Currently certified as EMT-B by the State of Arizona.*

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:* May be taken a maximum of six times for credit.*Offered: Fall/Spring/Summer***EMT 158A Transition Training for EMT Module A /7.5 cr. hrs./ 1.25 periods (.5 lec., .75 lab)***Prerequisite(s): Currently certified as an EMT-B by the State of Arizona.*

Review of current techniques in pre-hospital emergency care for the basic emergency medical technician. Includes roles and responsibilities of the EMT, airway assessment and management techniques, evaluation of injuries and medical emergencies.

*Offered: Fall/Spring/Summer***EMT 158B Transition Training for EMT Module B /7.5 cr. hrs./ 1.25 periods (.5 lec., .75 lab)***Prerequisite(s): Currently certified as an EMT-B by the State of Arizona.*

Review of current techniques in pre-hospital emergency care for the basic emergency medical technician. Includes intravenous therapy, blood glucose monitoring, principles of extrication, ambulance operations and triage.

*Offered: Fall/Spring/Summer***EMT 159 Cardiopulmonary Resuscitation: Healthcare Provider / .5 cr. hr./7.5 period (.25 lec., .5 lab)**

Introduction to the techniques required to provide cardiopulmonary resuscitation at the Healthcare Provider Level. Includes introduction to body systems and disease states which lead to cardiac and respiratory arrest. Also includes the assessment and intervention for the airway, respiration and central circulation.

*Information:* Course meets American Heart Association guidelines for the Healthcare Provider level.

*Information:* May be taken six times for a maximum of three credit hours.*Offered: Fall/Spring/Summer***EMT 170 ALS Operations /1 cr. hr./1 period (1 lec.)***Prerequisite(s): Acceptance into an ALS Training Program.*

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.

*Offered: Fall/Spring/Summer***EMT 172 IV Access for EMT-Basic /1.25 cr. hrs./1.5 periods (1 lec., .5 lab)***Prerequisite(s): Must hold current certification as an EMT-Basic.*

Provides a review of the anatomy of the circulatory system. Includes peripheral intravenous cannulation techniques, fluid resuscitation, obtaining venous blood samples for laboratory analysis, infection control techniques for the safety of self and victim, and complications of intravenous cannulation.

*Offered: Fall/Spring/Summer***EMT 175 Wilderness First Aid /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s): Consent of instructor.*

Skills to care for illness or injury in the wilderness environment. Includes environmental interaction, wellness, injury prevention, specific wilderness medical problems, trauma, stabilization, complications, and preparation.

*Offered: Fall/Spring/Summer***EMT 180 EMT Review: Theory and Practice 6 cr. hrs./8 periods (4 lec., 4 lab)***Prerequisite(s): Must be employed by or volunteer for an emergency services agency as an emergency services professional.*

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.

*Offered: Fall/Spring/Summer***EMT 180A EMT Review: Theory and Practice Module A 3 cr. hrs./ 4 periods (2 lec., 2 lab)***Prerequisite(s): Must be employed by or volunteer for an emergency services agency as an emergency services professional.*

Comprehensive review of the knowledge and skills required by certified emergency services professionals. Includes basic preparation, airway, patient assessment, and medical emergencies.

*Offered: Fall/Spring/Summer***EMT 180B EMT Review: Theory and Practice Module B 3 cr. hrs./ 4 periods (2 lec., 2 lab)***Prerequisite(s): Must be employed by or volunteer for an emergency services agency as an emergency services professional.*

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.

*Offered: Fall/Spring/Summer*

**EMT 205 ALS Pharmacology and Medication Administration / 3 cr. hrs./3.25 periods (2.75 lec., .5 lab)**

*Prerequisite(s): Acceptance into an ALS Training Program.*

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 patients in an emergency setting, and pharmacological mathematics.

*Offered: Fall/Spring/Summer*

**EMT 214 ALS Advanced Special Considerations/2.5 cr. hrs./3 periods (2 lec., 1 lab)**

*Prerequisite(s): Acceptance into an ALS training program.*

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.

*Offered: Fall/Spring/Summer*

**EMT 217 I-EMT National Registry Preparatory Course /5 cr. hrs./2.5 periods (.5 lec., 2 lab)**

*Prerequisite: Acceptance into an I EMT program.*

Review and preparation in standards of intermediate 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 Intermediate Emergency Medical Technician National Standard Testing Guidelines.

*Offered: Fall/Spring/Summer*

**EMT 218 Paramedic National Registry Preparatory Course / 2.5 cr. hrs./6 periods (1 lec., 5 lab)**

*Prerequisite(s): Acceptance into a paramedic training program.*

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.

*Offered: Fall/Spring/Summer*

**EMT 219 ALS Foundations /1.5 cr. hrs./1.75 periods (1.25 lec., .50 lab)**

*Prerequisite: Acceptance into an ALS training program.*

Introduction to the Advanced Life Support career field. Includes roles and responsibilities, EMS components, well being, illness and injury prevention, medical/legal considerations, and ethics.

*Offered: Fall/Spring/Summer*

**EMT 221 ALS Airway and Ventilation /1.5 cr. hr./2 periods (1 lec., 1 lab)**

*Prerequisite: Acceptance into an ALS training program.*

Techniques for establishing and/or maintaining a patent airway. Also includes anatomy and physiology, age specific techniques and procedures, introduction to respiratory pharmacology and respiratory drug profiling.

*Offered: Fall/Spring/Summer*

**EMT 222 ALS Patient Assessment and Assessment Based Management /1.5 cr. hrs./1.75 periods (1.25 lec., .50 lab)**

*Prerequisite: Acceptance into an ALS training program.*

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 ongoing 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.

*Offered: Fall/Spring/Summer*

**EMT 223 ALS Trauma Emergencies and Systems/2 cr. hrs./2.5 periods (1.75 lec., .50 lab)**

*Prerequisite: Acceptance into an ALS Training Program.*

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.

*Offered: Fall/Spring/Summer*

**EMT 224 ALS Medical Emergencies /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite: Acceptance into an ALS training program.*

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.

*Offered: Fall/Spring/Summer*

**EMT 225 ALS Special Medical Considerations /2 cr. hrs./2.25 periods (1.75 lec., .5 lab)**

*Prerequisite: Acceptance into an ALS training program.*

Introduction to the utilization of the assessment findings to formulate a field impression and implement the treatment plan for obstetric, neonatal, pediatric, geriatric, and chronic-case patients.

*Offered: Fall/Spring/Summer*

**EMT 227 ALS Practicum: Clinical Lab /3 cr. hrs./9 periods (9 lab)**

*Prerequisite: Acceptance into an ALS training program.*

Techniques for performing and documenting in accordance with established guidelines, orders, and protocols, and act within the scope of practice of the ALS Professional and under medical supervision. Includes critical care, emergency department, labor and delivery, pediatrics, and specialty units.

*Offered: Fall/Spring/Summer*

**EMT 228 ALS Practicum: Vehicular Lab/3 cr. hrs./9 periods (9 lab)**

*Prerequisite: Acceptance into an ALS training Pprogram.*

Techniques for performing and documenting in accordance with established guidelines, orders, and protocols, and act within the scope of practice of the ALS Professional and under medical supervision during a vehicular lab.

*Offered: Fall/Spring/Summer*

**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.

*Offered: Fall/Spring/Summer*

**EMT 231 EMT-Intermediate Transition /4 cr. hrs./5.5 periods (2.5 lec., 3 lab)**

*Prerequisite(s): Student must be currently certified as an I-EMT with the State of Arizona.*

This course provides an Arizona certified I-EMT with additional training necessary to make the I-EMT's skills equivalent to the skills of an I-EMT who has completed the 2001 Arizona I-EMT curriculum. The 2001 Arizona I-EMT curriculum is based on the NHTSA. DOT's 1999 I-EMT curriculum.

*Offered: Fall/Spring/Summer*

**EMT 242 ALS Advanced Foundations /2 cr. hrs./2.5 periods (1.5 lec., 1 lab)**

*Prerequisite(s): EMT 220 and acceptance into an ALS training program.*

Foundations of skills and principles in preparing to be a paramedic. Includes medical terminology, the human body structure, and pathophysiology.

*Offered: Fall/Spring/Summer*

**EMT 244 ALS Advanced Medical Emergencies /2.5 cr. hrs./3 periods (2 lec., 1 lab)**

*Prerequisite: EMT 224 and acceptance into an ALS training program.*

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.

*Offered: Fall/Spring/Summer*

**EMT 247 ALS Advanced Practicum: Clinical Lab /2 cr. hrs./6 periods (6 lab)**

*Prerequisite: EMT 227 and acceptance into an ALS training program.*

In-hospital clinical procedures for the ALS professional. Includes placement in the clinical (hospital) setting for supervised skills application with real patients.

*Offered: Fall/Spring/Summer*

**EMT 248 ALS Advanced Practicum: Vehicular Lab /3 cr. hrs./9 periods (9 lab)**

*Prerequisite: EMT 228 and acceptance into an ALS training program.*

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.

*Offered: Fall/Spring/Summer*

**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: Fall/Spring/Summer*



**EMT 251 Advanced Cardiac Care Refresher / .75 cr. hr./1 period (1 lec., .5 lab)**

Review of the integration of pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease/injury based on 3-lead and 12-lead cardiac monitoring and interpretation. Also includes information on cardiovascular anatomy and physiology, cardiovascular pathologies and management, and adjunctive diagnostics.

*Offered: Fall/Spring/Summer*

**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: Fall/Spring/Summer*

**EMT 253 Pediatric Advanced Life Support Refresher / .75 cr. hr./1 period (.5 lec., .5 lab)**

Overview of techniques for emergency services for children. Integrates physiological, psychological, and social changes throughout human growth and development. Includes information on pediatric assessment, airway management and respiratory emergencies, cardiovascular emergencies. Also includes information on neonatal emergencies, children with special healthcare needs, and Sudden Infant Death Syndrome (SIDS).

*Offered: Fall/Spring/Summer*

**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 12-lead cardiac monitoring and interpretation. Also includes information on cardiovascular anatomy and physiology, electrocardiographic monitoring, and adjunctive diagnostics.

*Offered: Fall/Spring/Summer*

**EMT 255 Instructional Strategies Course /2 cr. hrs./2.5 periods (1.5 lec., 1 lab)**

Introduction for organizational 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: Fall/Spring/Summer*

**EMT 256 Basic 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: Fall/Spring/Summer*

**EMT 257 Basic Trauma Life Support Refresher / .75 cr. hr./1 period (.5 lec., .5 lab)**

Overview of techniques for evaluating assessment findings to formulate a field impression and implementation of the treatment plan. Includes systemic approach to patient assessment and management, airway and ventilation, shock, soft tissue and burn injuries, isolated and multi-systems trauma, and various types of trauma patients.

*Offered: Fall/Spring/Summer*

**EMT 258 Pediatric Education for Pre-Hospital Professionals /1.5 cr. hr./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: Fall/Spring/Summer*

**EMT 259 Pediatric Education for Pre-Hospital Professionals Refresher / .75 cr. hr./1 period (.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: Fall/Spring/Summer*

**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 for airway, ventilation, and oxygen therapy, trauma and shock management, medical emergencies, special patient care, and special scene operations.

*Offered: Fall/Spring/Summer*

**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, rules and responsibilities, candidate stress and station preparation and implementation.

*Offered: Fall/Spring/Summer*

**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: Fall/Spring/Summer*

**EMT 264 Tox-Medic Refresher / .5 cr. hrs./1.5 periods (.5 lec.)**

*Prerequisite:* EMT 263.

Provides paramedics with continuing training in identification, assessment, and treatment of victims exposed to hazardous materials.

*Offered: Fall/Spring/Summer*

**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: Fall/Spring/Summer*

## ENGINEERING

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ENG 102IN Problem-Solving and Engineering Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* MAT 151 and 182 or 187.

Engineering design, effective team participation, and career preparation. Includes participation in hands-on design projects, developing an education and career plan, and initiating development of the personal and management skills necessary for life-long learning.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring*

**ENG 120IN Engineering Graphics /3 cr. hrs./7 periods (1 lec., 6 lab)**

*Prerequisite(s):* MAT 108 or high school geometry.

Principles and techniques of engineering graphics. Includes freehand technical sketching, instrument working drawings, projection, descriptive geometry and applications to engineering space problems.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring*

**ENG 130IN Elementary Surveying /3 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* MAT 151 and 182, or 187.

Theory of measurements and errors in surveying. Includes vertical and horizontal control methods; topographic, public land and construction surveys; and use of surveying instruments.

*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)**

*Prerequisite(s):* MAT 151 and 182 or 187.

Design of problem-solving algorithms. Includes implementation in a structured programming language and application to engineering.

*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.)**

*Prerequisite(s):* PHY 210.

*Corequisite(s):* Concurrent enrollment in MAT 241.



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).

*Offered: Fall/Spring*

### **ENG 218 Fluid Mechanics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): ENG 210, MAT 241.*

Introduction to hydrostatics and hydrodynamics. Includes continuity, irrotational flow, pressure distributions, weirs and gates, momentum and energy, surface drag, pipe friction, form drag, and pipefitting losses.

*Offered: Spring*

### **ENG 220 Engineering Mechanics: Dynamics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): ENG 210.*

Study of the motion of bodies under the action of forces. Includes kinematics of particles, and kinetics of rigid bodies.

*Offered: Spring*

### **ENG 230 Mechanics of Materials /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): ENG 210.*

Analysis and design of structural members subjected to tension, compression, torsion, and bending. Includes the fundamental concepts of stress, strain, elastic behavior, inelastic behavior, and strain energy.

*Offered: Fall/Spring*

### **ENG 232 Thermodynamics /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): MAT 241, PHY 216.*

Basic laws and examples of engineering applications of macroscopic thermodynamics. Includes equations of state, reversible and irreversible processes, vapor power cycles, refrigeration and heat pump cycles.

*Offered: Fall/Spring*

### **ENG 250 Numerical Analysis for Engineers /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): ENG 170 or 275 or Pascal or Matlab, and MAT 231.*

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.

*Offered: Spring*

### **ENG 260 Electrical Engineering /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): MAT 231, PHY 216.*

Introductory survey of the electrical engineering discipline with emphasis on electrical power applications. Includes electrical quantities, components, meters, capacitors, inductors, and transients. Also includes DC resistive network analysis, magnetic circuits, transformers, motors, and generators.

*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 number systems, coding of information, Boolean algebra, combinational logic circuit design, sequential circuit design, and register transfer system design. *Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring*

### **ENG 275IN Computer Programming for Engineering Applications /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): MAT 151 and 182, or 187.*

Programming in C with emphasis on numerical applications in engineering. Includes fundamentals of C language, analysis of errors inherent in floating point representations and calculations, structured program design, and applications to solving engineering problems.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer*

### **ENG 282IN Basic Electric Circuits /5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s): ENG 102.*

*Corequisite(s): MAT 262.*

Circuit variables, circuit elements, and simple resistive circuits. Includes techniques of circuit analysis, operational amplifiers, inductors and capacitors, mutual inductance, response of RL and RC circuits, response of RLC circuits, sinusoidal steady-state analysis, and transformers.

*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 "Topics Courses" on page 338.

### **ESL 050 English for Beginners /3 cr. hrs./3 periods (3 lec.)**

Beginning level course for students with no previous knowledge of English. Includes an emphasis on communication skills in day-to-day situations and the development of basic language skills including pronunciation, practice in listening, reading, writing, speaking, grammar and study skills.

*Offered: Fall/Spring/Summer*

### **ESL 060 English for Speakers of Other Languages I /6 cr. hrs./6 periods (6 lec.)**

*Prerequisite(s): Placement by ESL assessment test, completion of ESL 050 with a grade of C or better, or consent of the instructor.*

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.

*Offered: Fall/Spring/Summer*

### **ESL 061 Conversation I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Placement by ESL assessment test, completion of ESL 050 or higher with a grade of C or better, or consent of the instructor.*

Basic conversation skills for situations and tasks relevant to daily life, social interactions, and personal interests. Includes development of basic vocabulary and language functions of spoken English. Also includes levels of formality and nonverbal language.

*Offered: Fall/Spring/Summer*

### **ESL 063 English on the Job I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Placement by ESL assessment test, completion of ESL 050 with a grade of C or better, or consent of instructor.*

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

*Offered: Fall/Spring/Summer*

### **ESL 064 Introduction to American Culture /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Placement by ESL assessment test, completion of ESL 050 with a grade of C or better, or consent of instructor.*

Basic-level integrated skills course on American culture for ESL students. Includes development of basic English language skills and overall communicative competence through exploration of topics on American culture and the nature of cultural adjustment.

*Offered: Fall/Spring/Summer*

### **ESL 070 English for Speakers of Other Languages II /6 cr. hrs./6 periods (6 lec.)**

*Prerequisite(s): Placement by ESL assessment test, completion of ESL 060 with a grade of C or better, or consent of instructor.*

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.

*Offered: Fall/Spring/Summer*

### **ESL 071 Conversation II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Placement by ESL assessment test, completion of ESL 060 or higher with a grade of C or better, or consent of the instructor.*

Intermediate-level conversation class. Includes instruction in idiomatic expressions and vocabulary building, nonverbal communication, and language functions. Emphasis on speaking about topics relevant to life in the U.S. and American culture.

*Offered: Fall/Spring/Summer*

### **ESL 072 Pronunciation II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Placement by ESL assessment test, completion of ESL 060 or higher with a grade of C or better, or consent of the instructor.*

Pronunciation for non-native English speakers at the intermediate level. Includes introduction to pronunciation improvement, articulation of segmentals, and suprasegmentals. Emphasis on achieving increased overall intelligibility through improved production of English intonation, stress, rhythm, vowels, and consonants.

*Offered: Fall/Spring/Summer*

**ESL 073 English on the Job II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 060 or ESL 063 with a grade of C or better; or consent of instructor.  
General workplace communication skills for intermediate ESL students. Includes job-search skills, communication with supervisors and co-workers, discussion of intercultural issues, employee rights and responsibilities, and problem-solving strategies. Develops English language skills through integrated practice of both spoken and written English.

*Offered:* Fall/Spring/Summer

**ESL 074 American English and Culture Through Film /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 070 or higher with a grade of C or better; or consent of instructor.  
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.

*Offered:* Fall/Summer

**ESL 075 Computer Technology to Develop English Skills /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 060 or higher with a grade of C or better; or consent of instructor.  
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 web sites and the World Wide Web.

*Offered:* Fall/Spring

**ESL 080 English for Speakers of Other Languages III /6 cr. hrs./6 periods (6 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 070 with a grade of C or better; or consent of instructor.  
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.

*Offered:* Fall/Spring/Summer

**ESL 081 Conversation III /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 070 or higher with a grade of C or better; or consent of the instructor.  
Advanced-level conversational skills for increased fluency and comprehension. Includes conversational conventions, vocabulary, critical thinking skills, language functions, and non-verbal communication.

*Offered:* Fall/Spring/Summer

**ESL 082 Pronunciation III /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 070 or higher with a grade of C or better; or consent of instructor.  
Pronunciation for non-native English speakers at the advanced level. Includes review of articulation of consonants and vowels, strategies for continued pronunciation improvement, stress patterns, intonation and voice quality, phrasing and linking, and articulation of segmentals. Emphasis is on achieving increased overall intelligibility through improved production of English stress, rhythm, intonation, phrasing, and voice quality features in communicative contexts.

*Offered:* Fall/Spring/Summer

**ESL 083 Idioms in American English /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite:* ESL 070 or consent of the instructor.  
Study of idioms commonly used in American English at the high-intermediate to advanced level. Includes comprehension and appropriate use of idioms in oral and written contexts. Also includes identification of cultural values and connotations associated with idioms and the development of increased fluency in spoken English.

*Offered:* Fall/Spring

**ESL 084 Exploring American Film /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, concurrent enrollment in or completion of any ESL080-level course with a grade of C or better; or consent of instructor.

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.

*Offered:* Spring

**ESL 085 Academic English I /6 cr. hrs./6 periods (6 lec.)**

*Prerequisite(s):* Placement of ESL assessment test, completion of ESL 070 or ESL 080 with a grade of C or better; or consent of instructor.  
High intermediate-level, integrated academic skills for nonnative 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.

*Offered:* Fall/Spring/Summer

**ESL 086 Academic Projects I /6 cr. hrs./6 periods (6 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 070 or ESL 080 with a grade of C or better; or consent of instructor.  
High intermediate-level, integrated academic skills for nonnative speakers of English. Includes three thematic units with texts and discourse on academic topics, grammatical structures, reading and listening to academic texts and discourse, speaking about/or presenting projects on academic topics, using technology for Word processing and accessing the Internet, and goal setting.

*Offered:* Fall/Spring/Summer

**ESL 087 Comprehensive TOEFL Preparation /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 085 and 086 with a grade of C or better; or consent of instructor.  
Comprehensive TOEFL test preparation for ESL/EFL students. Includes detailed analysis and intensive practice for all four test components: listening, grammar, reading, and the Test of Written English (TWE). Also includes test-taking strategies on both timed and untimed practice tests.

*Offered:* Fall/Spring

**ESL 087A Grammar and TOEFL Preparation /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 085 and 086 with a grade of C or better; or consent of instructor.  
Review of English language skills and practice for the Test of English as a Foreign Language (TOEFL). Includes grammatical structure and written expression.

*Will not be offered this year*

**ESL 087B Listening Skills and TOEFL Preparation /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 085 and 086 with a grade of C or better; or consent of instructor.  
Review of English language skills and practice for the Test of English as a Foreign Language (TOEFL). Includes listening comprehension and writing.

*Will not be offered this year*

**ESL 087C Reading Review and TOEFL Preparation /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 085 and 086 with a grade of C or better; or consent of instructor.  
Review of English language skills and practice for the Test of English as a Foreign Language (TOEFL). Includes vocabulary, reading comprehension and essay writing.

*Will not be offered this year*

**ESL 088 Academic English II /6 cr. hrs./6 periods (6 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 085 and 086 with a grade of C or better; or consent of instructor.  
Advanced-level, integrated academic skills for nonnative speakers of English. Includes four content-based units including texts and discourse on academic topics, advanced grammatical structures, reading academic texts, writing about academic topics, using word processing and the Internet, and goal setting.

*Offered:* Fall/Spring/Summer

**ESL 089 Academic Projects II /6 cr. hrs./6 periods (6 lec.)**

*Prerequisite(s):* Placement by ESL assessment test, completion of ESL 085 and 086 with a grade of C or better; or consent of instructor.  
Advanced-level, integrated academic skills for nonnative speakers of English. Includes three thematic units with texts and discourse on academic topics, grammatical structures, reading and listening to academic texts and discourse, speaking about and/or presenting projects on Internet and Power Point, and goal setting.

*Offered:* Fall/Spring/Summer

**ENVIRONMENTAL TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ENV 105LB Humanity and the Environment Discovery Laboratory / 1 cr. hr./3 periods (3 lab)**

*Prerequisite(s):* Concurrent enrollment in ANT/ENV 105.  
Laboratory exercises and field trip experiences as applied to the relation-

ship 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.

**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 104.

**Offered:** Fall/Spring

### **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.

**Information:** Same as ANT 105.

**Offered:** Fall/Spring

### **ENV 196 Independent Study in Environmental Technology / 1-3 cr. hrs./1.75-8.25 periods (.25-2.75 lec., .5-5.5 lab)**

**Prerequisite(s):** Consent of instructor.

Independent study in Environmental Technology. Content to be determined by conference between student and instructor.

**Will not be offered this year**

### **ENV 251 OSHA 40: Hazardous Materials: Health and Safety / 2.5 cr. hrs./3 periods (2 lec., 1 lab)**

**Recommended:** ENV 100.

Protection of personnel in contact with hazardous materials. Includes basic toxicology, personal protection and safety, hazard identification systems, recognition and identification of hazardous materials, hazard classes and their properties, site emergencies, spill control and clean up. Meets OSHA requirements for business, industry, and government hazardous materials handlers.

**Will not be offered this year**

### **ENV 296 Advanced Independent Study in Environmental Technology /1-3 cr. hrs./1.75-8.25 periods (.25-2.75 lec., .5-5.5 lab)**

**Prerequisite(s):** Consent of instructor.

Independent study in Environmental Technology. Content to be determined by conference between student and instructor.

**Will not be offered this year**

### **ENV 297 Experiential Capstone Internship /4 cr. hrs./12 periods (2 lec., 10 lab)**

Project based experiential course where students will work on projects proposed by local industrial mentors, study global issues including safety, the environment and ethics. Includes lectures consisting of group activities, presentation of case studies and instruction on computer skills, communication, professionalism and ethics, safety and creating and making formal presentations.

**Will not be offered this year**

### **ENV 299 Co-op Related Class in ENV /1 cr. hr./1 period (1 lec.)**

**Corequisite(s):** Concurrent enrollment in ENV 299WK Co-op Work.

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.

**Information:** May be taken two times for a maximum of two credit hours.

**Will not be offered this year**

### **ENV 299WK Co-op Work in ENV /1-8 cr. hrs./5-40 periods (5-40 lab)**

**Corequisite(s):** Concurrent enrollment in ENV 299 Co-op Related Class.

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.

**Information:** May be taken two times for a maximum of sixteen credit hours.

**Will not be offered this year**

## **EQUINE SCIENCE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **EQS 101 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 student for further science and equitation studies in equine science.

**Will not be offered this year**

### **EQS 200 Equine Animal Science 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:** Fall

### **EQS 201 Equine Animal Science 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.

**Will not be offered this year**

### **EQS 203 Horse Care and Management /4 cr. hrs./6 periods (3 lec., 3 lab)**

The care and management of the horse as a domestic companion animal. Includes basic veterinary requirements, feeds and feeding, stabling, and preventive health care.

**Will not be offered this year**

## **EXPERIENTIAL EDUCATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **EED 110 Prior Learning Assessment /1-6 cr. hrs./1-6 periods (1-6 lec.)**

Explore credit options through the development of an individuals 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 50 credits may be earned for the EMT Paramedic program; students must register for six credits.

**Information:** A maximum of 36 credits may be earned for the Fire Science, Law Enforcement, Corrections, Juvenile Corrections, Public Safety Communications and Intermediate EMT programs; students must register for 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.

**Will not be offered this year**

## **FABRICATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **FAB 101 Mechanical Calibration Inspection Techniques /4 cr. hrs./6 periods (2 lec., 4 lab)**

**Prerequisite(s):** MAC 125 and MAT 092.

Techniques of mechanical inspection in a manufacturing environment. Includes an introduction to the setup and operation of the standard measuring machine, thread measurement, and the measurement of perpendicularity, parallelism, and angles.

**Offered:** Spring

### **FAB 102 Deburring and Parts Finishing /1.5 cr. hrs./2 periods (1 lec., 1 lab)**

Controlled edge and surface finishing with hand tools and vibratory equipment. Includes types of parts finishing, tools and equipment, procedures, techniques, vibratory and centrifuge finishing, documentation and quality assurance criteria.

**Offered:** Fall

### **FAB 104 Punch Press and Material Preparation /4 cr. hrs./5 periods (3 lec., 2 lab)**

Setup and operation of power saws, power shears, punch presses and rod parter. Includes material preparation, characteristics and handling.

**Will not be offered this year**



**FAB 105 Strippit and Weidomatic Turret Punch Press /4 cr. hrs./ 5 periods (3 lec., 2 lab)**

Setup and operation of Strippit and Weidomatic turret punch presses. Includes general operating procedures, managing a punch press computer numerical control (CNC) program, reading numerical control (NC) tape into memory, installing a paper numerical control tape, operating the data and operator panels, and setting up punches and dies.

*Will not be offered this year*

**FAB 125 Tool and Cutter Grinding /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s): GTM 105 and MAC 110.*

Operations and procedures for tool and cutter grinding. Includes safety, set up, fabrication, inspection, and uses of close tolerance measuring equipment.

*Will not be offered this year*

**FAB 127 Ultra Percussion Production Grinding /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s): MAC 125.*

Operations and procedures of ultra precision grinding. Includes safety, set-up, fabrication, inspection and uses of close tolerance measuring equipment.

*Will not be offered this year*

**FAB 162 Resistance Spot Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

Principles and techniques of joining different types of alloys by resistance spot welding. Includes safety, power sources, proper control settings, electrode care and maintenance, joint preparation, resistance welding symbols, and testing spot welds.

*Will not be offered this year*

**FAB 163 Automatic GTAW Spot Welding /Silver Brazing /4 cr. hrs./ 6 periods (2 lec., 4 lab)**

Principles and techniques of joining different types of alloys by automatic gas tungsten arc spot welding and silver braze welding. Includes safety, power sources, proper control settings, shielding gases, joint preparations and spot weld testing in both processes.

*Will not be offered this year*

**FAB 164 Laser Beam Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): MAT 092.*

Principles and techniques of joining different types of alloys by laser beam welding. Includes laser light and optics theory, safety precautions, proper control settings, setup and operation of equipment and specific laser applications.

*Will not be offered this year*

**FAB 251 Numerical Control Troubleshooting /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s): MAC 250 or a basic knowledge of computer numerical control operations.*

Numerical control/computer numerical control troubleshooting for manufacturing systems. Includes programming, preparation and setup, debugging and troubleshooting.

*Offered: Fall*

**FAB 270 Robotics and Automated Systems: Mechanical /4 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): PHY 101 and 102, or 115.*

Classification and overview of hardware found in robotic workcells and material handling systems. Includes hydraulic systems, pneumatic systems, electrical motors, digital logic, switches and relays, converters, memories and microprocessors, servo systems and industrial robots.

*Will not be offered this year*

**FAB 271 Programmable Logic Controllers /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s): FAB 270.*

Concepts and applications of programmable controllers. Includes number systems, logic concepts, central processors, input/output system, peripheral services and programming languages.

*Will not be offered this year*

**FAB 280 Advanced Machine Shop Applications /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): MAC 120 or consent of instructor.*

Advanced machining operations. Includes advanced applications of safety, dimensional measurement, lathe operation, milling machine operation, and grinding machine operation.

*Will not be offered this year*

**FAB 281 Tool Room Grinding /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): MAC 104 and 120.*

In-depth application of grinding machines. Includes surface grinders, out-

side diameter/inside diameter (OD/ID) grinders, jig grinders, and centerless grinders and attachments.

*Offered: Fall*

**FAB 282 Gage and Fixture Construction /4 cr. hrs./8 periods (2 lec., 6 lab)**

*Prerequisite(s): CAD 101, MAC 120, 275, 280.*

Construction of gages and fixtures. Includes construction principles, tolerances, design, material, heat treatment, and inspection.

*Will not be offered this year*

**FASHION DESIGN AND CLOTHING**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**FDC 111 Clothing Construction I: Beginning /3 cr. hrs./5 periods (2 lec., 3 lab)**

Fundamental principles of clothing construction. Includes selection of fabric and style and all techniques required for construction of clothing for men, women and/or children using commercial patterns.

*Information:* Proficiency test may be taken for level placement.

*Offered: Fall/Spring*

**FDC 112 Alteration and Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Methods of altering commercial patterns and principles of fitting garments. Includes production of personal patterns for basic dress, shirt and pants.

*Offered: Spring*

**FDC 121 Flat Pattern Making /3 cr. hrs./3 periods (3 lec.)**

Introduction to the flat pattern method of pattern making. Includes focus on engineering aspects and skills in pattern manipulation.

*Offered: Fall*

**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 an overview of human relationship with clothing and body art from 3000 B.C. to the 21st century.

*Offered: Spring*

**FDC 123 Introduction to Pattern-Making Using Computer Software / 3 cr. hrs./4 periods (2 lec., 2 lab)**

Introduction to the computer as used in pattern-making for apparel production. Includes focus on use of Pad System program.

*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: Fall*

**FDC 131 Clothing Selection /3 cr. hrs./3 periods (3 lec.)**

Introduction to the function of wardrobe in contemporary life. Includes concept of a working wardrobe which serves the wearer through clear communication, readiness and energy for tasks and roles, comfort, value and conservation of resources.

*Offered: Spring*

**FDC 132 Society, Culture, and Dress /3 cr. hrs./3 periods (3 lec.)**

Human behavior in relationship to clothing, body image, and self-concept. Includes basic human needs, habituation, effect of marketing and fashion campaigns on individuals and groups, and evaluation of clothing and image trends as both a cause and result of society and culture.

*Will not be offered this year*

**FDC 141 Introduction to Fashion Design /3 cr. hrs./3 periods (3 lec.)**

Survey of the business of apparel manufacturing and fashion design. Includes profiles of designers and their methods of work. Also includes fashion and design principles and their application in the apparel industry.

*Offered: Fall*

**FDC 142 Alteration and Repair /3 cr. hrs./5 periods (2 lec., 3 lab)**

Introduction to techniques for recycling and increasing the life and function of garments. Includes methods of altering, fitting, repairing, restyling, reconditioning and restoring of clothing.

*Offered: Spring*



**FDC 144 Fashion Drawing /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* ART 110 or 213.

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.

*Offered:* Summer

**FDC 211 Clothing Construction II: Advanced /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* FDC 111 or satisfactory score on proficiency test.

Second level clothing construction techniques. Includes placement of pattern and repeat in fabric and one-lay layout. Also includes construction of lined garment, unique patterned fabric, nap fabric garment and knit or stretch garment.

*Offered:* Fall/Spring

**FDC 212 Clothing Construction III: Tailoring /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* FDC 112 and 211, or consent of instructor.

Traditional and speed-tailoring methods, utilizing advanced techniques and materials. Includes focus on changing a flat piece of fabric into a three-dimensional garment with structure and shape.

*Will not be offered this year*

**FDC 241 Introduction to Draping /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* FDC 111, 141 and 211.

*Recommended:* Consult instructor for alternative prerequisite(s).

Application of design principles using the draping method of fashion design to create an original garment. Includes the manipulation of fabric on a three-dimensional form to obtain perfect fit and harmony between the fabric and the design.

*Will not be offered this year*

**FINANCE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**FIN 100 Basic Principles of Organizational Finance /1 cr. hr./1 period (1 lec.)**

Introduction to the fundamental principles of finance in profit-making, governmental, and not-for-profit organizations. Includes financial statements, common ratios, budgeting systems, cash forecasting, time value of money, investment decisions, and break-even analysis.

*Offered:* Summer

**FIN 111 Personal Investment Portfolios /3 cr. hrs./3 periods (3 lec.)**

Examination of various investment vehicles and portfolios. Includes role and scope of investments, economic analysis, equity securities, bond and fixed-income investments, mutual funds, annuities, other investment options, and portfolio management.

*Offered:* Fall/Spring/Summer

**FIN 131 Principles of Credit Unions /3 cr. hrs./3 periods (3 lec.)**

Introduction to credit union organizations. Includes concept and operating principles, historical development, structure, legal basis and regulation, membership demographics and services, leadership, credit union system in the United States, insurance and bonding by Credit Union National Association (CUNA), and current challenges.

*Will not be offered this year*

**FIN 136 Personal and Family Finance for Retirement /1 cr. hr./1 period (1 lec.)**

Overview of investments and family financial management for investment. Includes strategies to preserve and accumulate wealth, protection of assets against the death of a family member, real estate, and strategies to minimize tax effects on bequests.

*Will not be offered this year*

**FIN 190 Internship in Finance /1.2-9 cr. hrs./2-41 periods (1 lec., 1-40 lab)**

*Prerequisite(s):* Consent of instructor.

Supervised internship in a financial workplace. Includes experiences supervised by a professional in the field.

*Will not be offered this year*

**FIN 190A Internship in Finance: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Consent of instructor.

Survey of the financial workplace. Includes up-to-date employment information, preparing for work, and job-related expectations.

*Will not be offered this year*

**FIN 190B Internship in Finance: Module B /1.2-8 cr. hrs./1-40 periods (1-40 lab)**

*Prerequisite(s):* Consent of instructor.

Experience in the financial workplace. Includes assignment in a professional office and supervision by a Pima faculty member and a workplace supervisor.

*Will not be offered this year*

**FIN 231 Credit Union Operations /3 cr. hrs./3 periods (3 lec.)**

Principles of credit union organization, department functions, and compliance to consumer regulations. Includes member services, credit granting, collection, marketing, financial counseling, and credit union laws and regulations.

*Will not be offered this year*

**FIN 239 Credit Union Financial Management /3 cr. hrs./3 periods (3 lec.)**

*Recommended:* ACC 101.

Credit union accounting and financial management. Includes basic accounting principles, accounting cycle, subsidiary and control general ledgers, financial statements, accruing and calculating member dividends, reserve accounts, internal controls, financial statement analysis, preparing and managing financial budgets, cash flow budgeting, interest earning assets (loans and investments), cost of funds, risk management, financial trends, and audits.

*Will not be offered this year*

**FIRE SCIENCE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**FSC 102 Communicating in Spanish for the Workplace /1-6 cr. hrs./1-6 periods (1-6 lec.)**

*Prerequisite(s):* Consent of instructor.

Basic Spanish for easier communication with the Spanish speaking public. Includes conversational Spanish, work-related Spanish words, phrases, and idioms, and a survey of the cultures where the Spanish language is spoken.

*Will not be offered this year*

**FSC 130 Strength and Fitness for the Fire Service /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Consent of instructor.

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.

*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 fire fighting. Includes the chemistry of fire, use of water and other agents, fire fighting equipment and its uses, fire fighting practices and safety.

*Offered:* Fall/Spring

**FSC 150 Fire Operations II /4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s):* FSC 149.

Specialized classroom and practical experience in the practices and techniques of fire fighting. Includes principles of community fire defense, methods of entry, rescue, tools, apparatus, equipment, salvage, hydraulics, and fire extinguishment.

*Information:* Completion of FSC 149 and 150 will help prepare the student for successful completion of State of Arizona Firefighter I practical evaluation.

*Offered:* Fall/Spring

**FSC 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.

*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.

*Offered:* Fall/Spring

**FSC 153 Hazardous Materials /1-2 cr. hrs./1-2 periods (1-2 lec.)**

Basic chemical concepts and their applications to the field of fire science. Includes classes and properties of hazardous materials; recognition and identification of materials; management of materials in transit, in use, and in storage; and management of hazardous materials incidents.

Information: Equivalent to State of Arizona's First Responder, 40-hour course.

*Offered:* Fall/Spring

**FSC 154 Advanced Fire Prevention /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* FSC 152.

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.

Information: Completion of this course will allow the student to test for Arizona State Certification as Inspector II.

*Offered:* Fall/Spring

**FSC 160 Wildland Firefighting /2 cr. hrs./2 periods (2 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.

*Offered:* Fall/Spring

**FSC 162 Hydraulics and Fire Suppression /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 092.

*Recommended:* PHY 101.

Principles of hydraulics as applied to fire suppression. Includes physical laws affecting the movement of water through pipes, hydrants, pumps, 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.

*Offered:* Fall/Spring

**FSC 163 Fire Apparatus and Equipment /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* FSC 149.

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.

*Offered:* Fall/Spring

**FSC 164 Fire Protection Systems /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* FSC 162.

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.

*Offered:* Fall/Spring

**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.

*Offered:* Fall

**FSC 166 Fire Suppression, Strategy and Tactics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* FSC 149.

Principles of planning fire suppression attacks. Includes planning an attack to fit the problem and revising the plan of attack to meet changing situations.

*Offered:* Fall

**FSC 167 Rescue Practices for the Fire Service /3 cr. hrs./3 periods (3 lec.)**

Introduction to skills necessary to assess, extricate, and care for victims in emergency situations. Includes an overview of fire service-based rescue, rescue operations and incident management, and civilian versus firefighter rescue. Also includes why firefighters become victims and an overview of technical rescues.

*Offered:* Fall/Spring

**FSC 168 Special Hazard Tactical Problems /3 cr. hrs./3 periods (3 lec.)**

Tactical problems and specific hazards not normally encountered. Designed for experienced fire fighters. Includes hazard characteristics and hazardous materials under fire conditions.

Information: Designed for experienced fire fighters.

*Offered:* Fall/Spring

**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.

Information: Meets National Fire Academy requirements for Leadership I, II, and III.

*Offered:* Fall/Spring

**FSC 171 Fire Conflict Management /3 cr. hr./3 period (3 lec.)**

Overview of assertive communication and conflict management principles and techniques. Includes discussions, simulated exercises, and role-play to enhance an individual's ability to effectively cope with conflict.

*Offered:* Fall/Spring

**FSC 171A Fire Conflict Management: Module A /1 cr. hr./1 period (1 lec.)**

Overview of assertive communications, how people communicate, methods for controlling emotional reactions to confrontational and difficult situations, specific personality types and ways to deal with them, effective listening techniques, and handling complaints from the public. Includes discussions, self-assessments, simulated exercises, and role-play to enhance an individual's ability to effectively and honestly communicate and cope with conflict.

Information: FSC 171A, 171B, and 171C together constitute FSC 171.

*Offered:* Fall/Spring

**FSC 171B Fire Conflict Management: Module B /1 cr. hr./1 period (1 lec.)**

Continuation of FSC 171A. Includes principles of gathering information, information gathering techniques, mediation techniques, when you are involved in the conflict, and role-plays. Also, involves discussions, self-assessments, simulated exercises, and role-play to enhance an individual's ability to ethically and effectively mediate conflict.

Information: FSC 171A, 171B, and 171C together constitute FSC 171.

*Offered:* Fall/Spring

**FSC 171C Fire Conflict Management: Module C /1 cr. hr./1 period (1 lec.)**

Continuation of FSC 171B. Includes assessing personal skills, abilities and motivations, barriers to communication, communication filters, and work force diversity and values. Also includes discussions, self-assessments, simulated exercises, and role-play to enhance an individual's ability to effectively and honestly communicate.

Information: FSC 171A, 171B, and 171C together constitute FSC 171.

*Offered:* Fall/Spring

**FSC 173 Records and Reports /1 cr. hr./1 period (1 lec.)**

Introduction to the elements and qualities of good report writing and comprehensive documentation. Includes form, style, and methodologies for writing various reports, techniques for developing an accurate narrative, and proper and improper conclusions. Also includes effective and correct use of grammar and the mechanics of writing.

*Offered:* Fall/Spring

**FSC 175 Introduction to Fire Investigation: Origin and Recognition of Arson /3 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.

*Offered:* Fall/Spring

**FSC 180 Driver Training for the Fire Service /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring

**FSC 181 Firefighter Rescue /1 cr. hr./1 period (1 lec.)**

Designed to give the firefighter the skills necessary to remove themselves and fellow firefighters from dangerous situations. Includes the skills necessary to perform effectively as a Rapid Intervention Crew (RIC) team with the goal of locating and removing injured or trapped firefighters.

*Offered:* Fall/Spring

**FSC 185 Advanced Fire Investigation: Arson /3 cr. hrs./3 periods (3 lec.)**

Training in fire investigation. Includes fire loss, arson laws, search and seizure, interviewing witnesses, photography, reconstruction, and vehicular fires.

*Offered:* Fall/Spring

**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.

*Offered:* Fall/Spring

**FSC 260 Fire and Emergency Services Instructor I /2 cr. hrs./ 2 periods (2 lec.)***Prerequisite(s): Consent of instructor.*

Theoretical and practical training in developing and instructing fire and emergency services training programs. Includes an exploration of safety and legal issues, adult learning psychology, developing, planning and presenting effective instruction, evaluating student learning, teaching diverse learners, and use of instructional media.

*Information:* Meets the requirements for the Arizona State Fire Marshal Instructor I certification and NFPA 1041.

*Offered: Fall/Spring***FSC 261 Fire and Emergency Services Instructor II /2 cr. hrs./ 2 periods (2 lec.)***Prerequisite(s): Consent of instructor.*

Continuation of FSC 260. Theoretical and practical training in developing, instructing and managing fire and emergency services training programs. Also includes an exploration of the design and development of training programs, performing needs and task analyses, development and utilization of lesson plans, the recruitment, selection and evaluation of instructors, and training manager's responsibilities relating to budget and resource management.

*Information:* Meets the requirements for the Arizona State Fire Marshal Instructor II certification and NFPA 1041.

*Offered: Fall/Spring***FSC 270 Leadership I for Fire Service Executives /1 cr. hr./1 period (1 lec.)**

Concepts, techniques, and applications of effective executive leadership. Includes leadership styles and characteristics, the effective executive, and leaders with vision, influence and motivation. Also includes being a change facilitator in a traditional organization, and the future of leadership.

*Offered: Fall/Spring***FSC 271 Leadership II for Fire Service Executives /1 cr. hr./1 period (1 lec.)**

Continuation of FSC 270. Includes organizational structure, roles and responsibilities, and organizational values. Also includes organizational vision, fiscal management and priorities, innovative organizations, executive leadership, and deployment of self.

*Offered: Fall/Spring***FSC 272 Leadership III for Fire Service Executives /1 cr. hr./1 period (1 lec.)**

Continuation of FSC 271. Includes communication skills, presentation skills, and verbal and writing skills at an executive level. Also includes interpersonal skills, labor relations, conflict management, ethical/unethical persuasion, and the media.

*Offered: Fall/Spring***FSC 273 Leadership IV for Fire Service Executives /1 cr. hr./1 period (1 lec.)**

Continuation of FSC 272. Includes the local fire department in relation to its city government, local policy development, and understanding how the local educational system works. Also includes legal aspects of the city and department procedures, networking and community relations, relations with local and state fire service providers, and understanding the national and international fire service providers.

*Offered: Fall/Spring***FSC 274 Leadership V for Fire Service Executives /1 cr. hr./1 period (1 lec.)**

Continuation of FSC 273. Includes reasoning, thinking patterns, problem identification, and problem solving strategies. Also includes problem solving styles, decision-making models and approaches, personal decision making, and evaluation.

*Offered: Fall/Spring***FSC 275 Leadership VI for Fire Service Executives /1 cr. hr./1 period (1 lec.)**

Continuation of FSC 274. Includes master planning, facilities planning, and human resource planning. Also includes financial planning, strategic planning, implementation planning, and leadership skills in planning for the future.

*Offered: Fall/Spring***FSC 280 Fire Chief Training /4 cr. hrs./4 periods (4 lec.)**

Preparation for professional fire personnel to become chief officers. Includes incident command, communications, and disaster management.

*Offered: Fall/Spring***FITNESS AND RECREATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**FAR 050 Senior Fitness and Conditioning /1 cr. hr./2 periods (2 lab)**

Conditioning for mature individuals. Includes muscular endurance, strength, and cardiovascular fitness. Also includes coordination and flexibility.

*Offered: Fall/Spring/Summer***FAR 101 Running for Fitness /1 cr. hr./2 periods (2 lab)**

*Recommended:* Heart rate monitor and approval by personal health care provider.

Techniques and practice oriented to the beginning and intermediate runner for designing a running program. Includes learning how to train for a 5K, 10K, half marathon or marathon.

*Offered: Fall***FAR 105 Beginning Aerobics /1 cr. hr./2 periods (2 lab)**

Aerobics for the beginning student. Includes varied exercises and dance routines to strengthen the cardiovascular system and tone muscles. Also includes information and techniques for proper warm-ups, stretches, and cool-downs.

*Information:* This course is not intended for Fitness and Sports Science majors.

*Offered: Fall/Spring/Summer***FAR 109 Walking for Fitness /1 cr. hr./2 periods (2 lab)**

Individually paced walking using effective biomechanics and techniques as associated with recreation fastwalking. Includes cardiovascular workouts within a target zone to promote positive health, fitness and confidence.

*Information:* May be taken three times for a maximum of three credit hours.

*Offered: Spring***FAR 112 Beginning Bowling /1 cr. hr./2 periods (2 lab)**

Introduction to beginning bowling. Includes the history of bowling, basics of bowling, bowling etiquette, bowling equipment, the beginning approach, the proper stance, getting to the foul line, scoring, keys to successful bowling, and types of bowling games.

*Will not be offered this year***FAR 115 Kickboxing /1 cr. hr./2 periods (2 lab)**

Introduction to kickboxing. Includes upper and lower body muscular and cardiovascular exercises.

*Offered: Fall/Spring/Summer***FAR 120 Self Defense for Women /1.5 cr. hrs./3 periods (3 lab)**

Introduction to the mental attitudes and physical skills needed to defend oneself against an attack. Includes recognizing potentially dangerous situations and how to avoid them.

*Information:* May be taken four times for a maximum of eight credit hours.

*Offered: Fall/Spring/Summer***FAR 125 Beginning Fencing /1 cr. hrs./2 periods (2 lab)**

Introduction to fencing for the beginner and novice. Includes fencing techniques and skills, and psychological and learning principles in the analysis of fencing skill acquisition and performance.

*Offered: Fall/Spring/Summer***FAR 130 Beginning Tae Kwon Do /1 cr. hr./2 periods (2 lab)**

Introduction to the basics of Tae Kwon Do. Includes stretching techniques, warm up exercises, self-defense techniques, and kicking techniques. Also includes skills sufficient to pass the yellow belt test.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Fall/Spring/Summer***FAR 131 Intermediate Tae Kwon Do /1.5 cr. hrs./3 periods (3 lab)**

*Prerequisite(s): FAR 130 or consent of instructor.*

Continuation of FAR 130. Includes combinations of punches, strikes, and kicks. Also includes skills necessary to pass the green belt test.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered: Fall/Spring/Summer***FAR 132 Advanced Tae Kwon Do /1.5 cr. hrs./3 periods (3 lab)**

*Prerequisite(s): FAR 131 or consent of instructor.*

Continuation of FAR 131. Includes advanced techniques and tournament type skill performance.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered: Fall/Spring/Summer***FAR 133 Beginning Karate /1 cr. hr./2 periods (2 lab)**

Introduction to Okinawan Karate. Includes history and philosophy, basic techniques, performance categories, and self-defense strategies.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered: Fall*



**FAR 134 Intermediate Karate /1.5 cr. hrs./3 periods (3 lab)**

*Prerequisite(s):* FAR 133.

Continuation of FAR 133. Includes intermediate level katas (combinations of movements).

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Spring

**FAR 136 Beginning Kung Fu /1 cr. hr./2 periods (2 lab)**

Introduction to the basics of Kung Fu. Includes techniques in kicking and punching, and basic Shaolin forms. Also includes developing body language in areas such as discipline, endurance and attitude.

*Offered:* Fall/Spring/Summer

**FAR 140 Beginning Chi Kung (Chinese Yoga) /1 cr. hr./2 periods (2 lab)**

Introduction to Chi Kung (Chinese yoga). Includes stretching and breathing in simple, dynamic movements and postures. Also includes the practice of Chi Kung which benefits health by promoting relaxation and increasing strength, flexibility and oxygen supply to all cells of the body.

*Offered:* Fall/Spring/Summer

**FAR 153 Swim Fit /1 cr. hr./2 periods (2 lab)**

Cardiovascular conditioning through lap swimming for the fitness enthusiast. Includes basic stroke review. Also includes techniques of endurance swimming and determination of cardiovascular fitness level.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FAR 154 Water Aerobics /1 cr. hr./2 periods (2 lab)**

Cardiovascular, strengthening, and flexibility exercise in the pool for swimmers at all levels. Includes review of safety water techniques, and upper and lower body movement in water. Also includes coordination of movement to music, and cardiovascular fitness level determination using heart rate measurements.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FAR 155 Swimming: Stroke Development /1 cr. hr./2 periods (2 lab)**

Swimming lessons for both the novice and advanced swimmer in the development and/or refinement of a wide variety of strokes. Includes orientation to the aquatic environment, rhythmic breathing, water and deep water entry, and treading water. Also includes front and back crawl, backstroke, breaststroke, sidestroke, butterfly, underwater swimming, turns, and diving.

*Offered:* Fall/Spring/Summer

**FAR 160 Lifeguarding /1 cr. hr./2 periods (2 lab)**

*Prerequisite(s):* Prior or concurrent enrollment in American Red Cross Basic First Aid and CPR for the professional rescuer.

Introduction to the profession of lifeguarding. Includes endurance swimming, approach and lifesaving stroke techniques. Also includes prevention and surveillance techniques as well as shallow and deep water rescues, including spinal injuries.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FAR 161 Beginning T' ai-chi Chuan /1 cr. hr./2 periods (2 lab)**

Basic techniques of Yang style T' ai-chi Chuan, a form of martial arts. Includes an introduction to and principles of T' ai-chi for a healthier life style and self defense; and Yang Style Short Form.

*Offered:* Fall/Spring/Summer

**FAR 170 Basic Scuba /1 cr. hr./2 periods (2 lab)**

*Prerequisite(s):* Consent of instructor.

Introduction to the open water swimming environment. Includes scuba diving equipment, physics, environmental biology of the ocean, and human physiology. Upon successful completion of the course, students are qualified for diving in open water and may choose to complete National Association of Scuba Educators (NASE) certification.

*Information:* Students are required to complete a 200 yard fitness swim test and a 10 minute minimum survival float.

*Offered:* Fall/Spring/Summer

## FITNESS AND SPORT SCIENCES

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**FSS 105 Beginning In-Line Skating /1 cr. hr./2 periods (2 lab)**

Basics of in-line skating. Includes protective equipment, rules of the road, safety on skates, stretching and cool down, getting comfortable on in-line skates, moving on in-line skates, beginning movements or stride one, beginning braking, beginning turning, edge control, stride two, and practical skating.

*Offered:* Fall

**FSS 106 Intermediate In-Line Skating /1.5 cr. hrs./3 periods (3 lab)**

*Prerequisite(s):* FSS 105 or consent of instructor.

In-line skating for the experienced skater. Includes review of equipment needs and safety rules, fitness preparation, and intermediate level movements related to downhill and uphill skating.

*Offered:* Spring

**FSS 110 Beginning Golf /1 cr. hr./2 periods (2 lab)**

Introduction to golf for the beginner. Includes grip, stance, swing, putting, and rules.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSS 111 Intermediate Golf /1.5 cr. hrs./3 periods (3 lab)**

Development of skills introduced in the beginning class. Includes grip, stance, swing, driving, chipping, rules, and etiquette.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 112 Advanced Golf /1.5 cr. hrs./3 periods (3 lab)**

Advanced skills in golf and development of the mental aspects of the game. Includes techniques for playing hazards, difficult lies, and making special shots.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 113 Beginning Racquetball /1 cr. hr./2 periods (2 lab)**

Introduction to racquetball for the beginner and novice. Includes equipment, safety, game rules, techniques, and skill development. Also includes singles, cut-throat, and doubles play.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall

**FSS 114 Intermediate Racquetball /1.5 cr. hrs./3 periods (3 lab)**

Intermediate level skill development and play. Includes a review of the beginning level skills. Also includes rules, etiquette, singles and doubles strategies, and tournament play.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Spring

**FSS 116 Beginning Tennis /1 cr. hr./2 periods (2 lab)**

Introduction to the basic skills and rules of tennis. Includes forehand, backhand, serve, and volley. Also includes strategy, courtesy, selection of equipment, and general rules for playing singles and doubles.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSS 117 Intermediate Tennis /1.5 cr. hrs./3 periods (3 lab)**

Refinement of tennis skills for the developing player. Includes running forehand drive, running backhand drive, service, volley, drop shot, overheads, strategies, and analysis of opponent's game. Also includes scoring, handling physical and mental stress, avoiding injury, and tournament play.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 118 Advanced Tennis /1.5 cr. hrs./3 periods (3 lab)**

Progressive skill development for the advanced tennis player. Includes advanced strategies in singles and doubles play, poise in tournaments, analyzing your opponent, handling injury, and interpretation of rules.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 119 Track and Field /1.5 cr. hrs./3 periods (3 lab)**

Fundamental techniques of track and field. Includes introduction to protocols and equipment, rules and safety, skill assessment, technique and training for one field event area, officiating and regulations, and demonstration of skills and rules.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 120 Beginning Soccer /1 cr. hr./2 periods (2 lab)**

Introduction to soccer for the beginner. Includes passing, receiving and controlling, dribbling and maintaining control, heading, throwing, corners, goal kicks and other special situations. Also includes shooting, defensive techniques, rules of the game, common terminology and tactics of play.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSS 121 Advanced Soccer /1.5 cr. hrs./3 periods (3 lab)**

Advanced skills for soccer. Includes game-like conditions, special plays and advanced game strategies.

*Information:* May be taken four times for a maximum of six credit hours.

*Offered:* Spring/Summer



**FSS 122 Beginning Handball /1 cr. hr./2 periods (2 lab)**

Introduction to handball for the beginner. Includes equipment, safety, strategies, techniques, and skill development.

Information: May be taken six times for a maximum of six credit hours.

Offered: Fall/Spring/Summer

**FSS 125 Beginning Basketball /1 cr. hr./2 periods (2 lab)**

Introduction to the fundamentals of basketball. Includes history of the games, rules and fundamental skills.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring/Summer

**FSS 126 Intermediate Basketball /1.5 cr. hrs./3 periods (3 lab)**

Development of techniques for students with basic basketball skills. Includes the fundamentals of footwork and balance, jumping, rebounding and guarding. Also includes officiating techniques and development of basic defenses and offenses used in basketball.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall/Spring

**FSS 127 Advanced Basketball /1.5 cr. hrs./3 periods (3 lab)**

Advanced skills for basketball. Includes game-like conditions, special plays, and advanced game strategies.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall/Spring

**FSS 128 Beginning Baseball /1 cr. hr./2 periods (2 lab)**

Introduction to the fundamentals and basic skills of baseball. Includes infield, outfield, catching, pitching and offensive and defensive strategies.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall

**FSS 129 Beginning Softball /1 cr. hr./2 periods (2 lab)**

Introduction to slow and fast pitch softball. Includes equipment and field, defensive and offensive skills, pitching, strategies, rules and officiating and defensive strategy.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall

**FSS 130 Advanced Softball /1.5 cr. hrs./3 periods (3 lab)**

Progressive skill development for the advanced softball player. Includes advanced tactics and competition.

Information: May be taken six times for a maximum of nine credit hours.

Offered: Spring

**FSS 131 Beginning Volleyball /1 cr. hr./2 periods (2 lab)**

Introduction to volleyball for the beginning player. Includes basic skills, rules, and team systems and strategies.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall

**FSS 132 Intermediate Volleyball /1.5 cr. hrs./3 periods (3 lab)**

Introduction to volleyball for the player with previous volleyball experience. Includes refinement of basic skills, introduction of advanced skills, and team systems.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall/Spring

**FSS 133 Advanced Volleyball /1.5 cr. hrs./3 periods (3 lab)**

Volleyball for the skilled and experienced player. Includes refining skills and introducing advanced techniques and team systems.

Information: May be taken four times for a maximum of six credit hours.

Offered: Fall/Spring

**FSS 134 Advanced Baseball /1.5 cr. hrs./3 periods (3 lab)**

Prerequisite(s): FSS 128.

Introduction to advanced tactics and competition in baseball. Includes advanced instruction in base running, fielding, hitting, and offensive and defensive strategies.

Information: May be taken four times for a maximum of six credit hours.

Offered: Spring

**FSS 135 Beginning Wrestling /1 cr. hr./2 periods (2 lab)**

Recommended: Consult instructor for skill status requirements.

Introduces the sport of intercollegiate wrestling. Includes fundamentals of combative wrestling.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall

**FSS 136 Intermediate Wrestling /1.5 cr. hrs./3 periods (3 lab)**

Prerequisite(s): FSS 135.

Recommended: Consult instructor for alternative prerequisites.

Continuation of FSS 135. Includes introduction to intermediate skill levels of combative wrestling.

Information: May be taken four times for a maximum of six credit hours.

Offered: Spring/Summer

**FSS 137 Advanced Wrestling /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): FSS 136.

Recommended: Consult instructor for alternative prerequisites.

Continuation of FSS 136. Includes techniques and skill development for the experienced wrestler, college-level tactics, and advanced strategies under matchlike conditions.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Spring

**FSS 148 Spinning /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): Consent of instructor.

Individually paced physical stationary bike riding. Includes fundamental techniques of spinning and mental conditioning to maximize benefits from non-impact cardiovascular workouts set to music.

Offered: Fall/Spring/Summer

**FSS 150 Fitness Activities /1 cr. hr./2 periods (2 lab)**

Introduction to fitness activities for the beginner. Includes the importance of exercise, proper nutrition, effect of attitudes on health, and the basics of the physiology of exercise. Also includes participation in stretching exercises, walking, jogging, dancing, and biking.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring

**FSS 151 Sports Conditioning /1 cr. hr./2 periods (2 lab)**

Corequisite: Enrollment in an athletic team class.

Conditioning class for athletes. Includes working with respective coaches on drills and exercises designed for a particular sport.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring/Summer

**FSS 152 Individual Fitness Activity /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): At least one physical education activity class or consent of instructor.

Independent fitness activities designed for students who are actively engaged in a fitness activity, but are unable to meet regularly scheduled physical education classes.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring/Summer

**FSS 153 Plus-Sized Exercise /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): Twenty-five pounds or more overweight.

Beginning aerobic exercise, toning, and stretching for individuals desiring to use exercise for weight control. Includes student determination of appropriate exercise intensity levels and modifications during activities.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring

**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 attitude adjustments, learning styles, study skills, test preparation, time management and long range academic planning. Also includes concerns for life-time health and fitness, NJCAA eligibility, and transfer to four-year colleges.

Information: May be taken three times for a maximum of six credit hours.

Offered: Fall/Spring/Summer

**FSS 156 Sport Conditioning Through Plyometrics /1 cr. hr./2 periods (2 lab)**

Introduction to sport specific conditioning through plyometrics. Includes basic skills and strategies of plyometric drills and their usage for various specific sports.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring

**FSS 174 Yoga /1 cr. hr./2 periods (2 lab)**

Introduction to stress reduction through Yoga. Involves stretching, basic postures, breathing, and relaxation techniques to improve overall wellness.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring/Summer

**FSS 175 Yoga and Meditation /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s): FSS 174 or consent of instructor.*

Continuation of FSS 174. Includes emphasis on meditation, concentration techniques, and yoga philosophy. Also includes complex variations of basic postures, new challenging postures, breathing and relaxation techniques, and exploration of various paths of yoga, styles of hatha yoga, and yoga subtle anatomy to cultivate and focus upon the inner connection among body, breath, mind and spirit.

*Information:* Students must have no major physical limitations, at least one year of yoga experience of an established daily yoga routine.

*Offered:* Fall/Spring/Summer

**FSS 176 Low Impact Aerobics /1 cr. hr./2 periods (2 lab)**

Introduction to cardiovascular and muscular exercises. Includes walking, jogging, stretching, calisthenics, and muscle toning. Also includes cool down and relaxation exercises.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSS 177 Medium Intensity Aerobics /1 cr. hr./2 periods (2 lab)**

Moderate cardiovascular and muscular conditioning. Includes increasing stamina and exercise levels, and the development of individual workout routines.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSS 178 High Intensity Aerobics /1 cr. hr./2 periods (2 lab)**

Intensive aerobics designed for muscular and cardiovascular efficiency. Includes the development of a complete exercise program.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSS 179 Step Aerobics /1 cr. hr./2 periods (2 lab)**

High intensity, low impact program that involves stepping on and off a platform repeatedly, while simultaneously performing upper body movements. Includes both beginning and advanced students at varying intensity levels.

*Offered:* Fall/Spring/Summer

**FSS 180 Strategies for Weight Management /1 cr. hr./1 period (1 lec.)**

Current research, information, and support to make lifestyle changes to manage weight and improve overall wellness. Includes an introduction to new concepts in weight control, physiological and psychological effects of dieting, collection of baseline data (anthropometric measures, health and exercise histories), behavior modification and motivational techniques, nutritional information, and exercise and activity concepts.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring

**FSS 181 Stretch and Tone /1 cr. hr./2 periods (2 lab)**

Muscular strength and endurance workout designed to tone and strengthen the entire body. Includes hand weights, resistant tubing, dynabands, stretching and flexibility exercises.

*Information:* May be taken six times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 185 Beginning Weight Training and Cardiovascular Fitness /1 cr. hr./2 periods (2 lab)**

Basic, balanced fitness training program designed for the beginner. Includes the development of a personalized weight training and cardiovascular routine designed for growth in muscle endurance, strength, and cardiovascular fitness.

*Information:* May be taken six times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 186 Intermediate Weight Training and Cardiovascular Fitness /2 cr. hrs./4 periods (4 lab)**

Exploration into the range and magnitude of weight and cardiovascular training. Includes rules for weight training, body position when exercising, order of exercises, overloading, and cardiovascular assessment. Also includes current trends and issues.

*Information:* May be taken six times for a maximum of twelve credit hours.

*Offered:* Fall/Spring/Summer

**FSS 187 Advanced Weight Training and Cardiovascular Fitness /2 cr. hrs./4 periods (4 lab)**

Intensive weight training and cardiovascular activities for physically qualified individuals. Includes advanced training techniques and development of higher degree skill techniques.

*Information:* May be taken six times for a maximum of twelve credit hours.

*Offered:* Fall/Spring/Summer

**FSS 188 Strength and Conditioning for Sport /1.5 cr. hrs./3 periods (3 lab)**

Advanced sport specific programs of strength and conditioning designed to enhance athletic performance. Includes focus on development of power, strength, flexibility, agility, balance and dynamic correspondence.

*Offered:* Fall/Spring/Summer

**FSS 199 Co-op Related Class in FSS /1 cr. hr./1 period (1 lec.)**

*Corequisite(s): Concurrent enrollment in FSS 199WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring/Summer

**FSS 199WK Co-op Work in FSS /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s): Concurrent enrollment in FSS 199 Co-op Related Class.*

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 two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring/Summer

**FSS 201 Introduction to Exercise Science and Physical Education /3 cr. hrs./3 periods (3 lec.)**

Introduction to the disciplines and professions associated with exercise science and physical education. Includes an overview of historical and philosophical foundations.

*Offered:* Fall

**FSS 205 Theory of Coaching Baseball /2 cr. hrs./2 periods (2 lec.)**

Advanced instruction in the theory of coaching advanced baseball techniques and methods. Includes role of the coach, game management, and improving performance.

*Offered:* Spring

**FSS 234 Fundamentals of Exercise Science /1 cr. hrs./1 periods (1 lec.)**

*Prerequisite:* WRT 100, REA 112

*Corequisite:* FSS 208, FSS 218

Overview of the musculoskeletal and cardiovascular systems with emphasis on structure and function as it applies to human movement and physiology. Includes the fundamental concepts of human movement, energy transfer systems, and exercise physiology.

*Information:* This course is a prerequisite or co-requisite to FSS 208, FSS 218, FSS 276, FSS 270 and FSS 277.

*Offered:* Fall

**FSS 236 Communication and Exercise Adherence /1 cr. hrs./1 periods (1 lec.)**

Communication skills and interviewing techniques for personal trainers. Includes introduction to theories of motivation, discussion of the theoretical model of the Stages of Changes and strategies for enhancing motivation, communication techniques, and exercise adherence for clients at various stages.

*Information:* This course is intended for the Fitness Professional and Professional Development for coaches.

*Offered:* Fall/Spring/Summer

**FSS 238 Introduction to Sports Injury Management /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s): WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.*

Introduction to principles and techniques of preventing, treating and rehabilitating sports related injuries. Includes recognition of sports injuries, therapeutic methods, mechanisms of sports injuries, nutrition, and taping and wrapping techniques.

*Offered:* Fall/Spring/Summer

**FSS 239 Introduction to Leisure Education /3 cr. hrs./3 periods (3 lec.)**

Survey of job careers in the leisure service field. Includes sports and recreation specialty, health, teaching, and coaching in the commercial, private, and public sector.

*Will not be offered this year*

**FSS 241 Nutrition for Exercise and Sport /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 086, WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.  
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.  
*Information:* This course is intended for the Fitness Professional and Professional Development for coaches.

*Offered:* Fall

**FSS 242 Games and Activities for the School-Aged Child /3 cr. hrs./3 periods (3 lec.)**

Basic skills in and knowledge of methods and materials for teaching physical activities, games, and sports to the school-aged (K-8) child. Includes program development and planning, classroom management techniques, legal considerations, activities, and modifications for the special child.

*Will not be offered this year*

**FSS 250 Sport First Aid /1 cr. hr./1 period (1 lec.)**

Basic first aid skills in the sport setting. Includes recognition of common sport injuries and administration of appropriate first aid. Also includes provision of national certification through the American Sport Education program.

*Information:* May be taken four times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSS 260 Business Practices for the Personal Trainer /1 cr. hrs./1 periods (1 lec.)**

Practices associated with creating and managing a personal training business. Includes how to develop a business plan, marketing services, and legal and professional responsibilities.

*Information:* This course is intended for the Fitness Professional.

*Offered:* Fall/Spring

**FSS 270 Advanced Principles of Athletic Conditioning /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* FSS 218 and FSS 234.

Advanced theory and application of resistance training principles. Includes designing, implementing and evaluating training and conditioning programs to improve fitness and athletic performance.

*Information:* May be taken three times for a maximum three credit hours.

*Information:* This course is intended for the Fitness Professional and Professional Development for coaches.

*Offered:* Fall/Spring

**FSS 271 Adolescent Sport Psychology /3 cr. hrs./3 periods (3 lec.)**

Development of the basics of sports psychology as applied to adolescence. Includes principles of motivation, varied psychological skills for athletes' performance improvement, and leadership emphasis through communication skills. Also includes imagery, stress management and attentional skills development for performance enhancement.

*Offered:* Fall/Spring

**FSS 272 Coaching Techniques and Practices /3 cr. hrs./3 periods (3 lec.)**

Concepts and strategies for teaching athletes both new skills and fine tuning of existing skills. Includes presentation of new skills, development and maintenance of skills, and cognitive processes for improved performance.

*Information:* Appropriate for coaches of athletes of all ages and skill levels.

*Offered:* Spring

**FSS 273 Sport Physiology /3 cr. hrs./3 periods (3 lec.)**

Principles of muscular, energy and endurance fitness training for peak performance. Includes focus on individual differences, muscular fitness components, energy systems, performance evaluation, and training program development.

*Offered:* Spring

**FSS 276 Personal Trainer: Muscular Strength, Endurance, Flexibility /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite:* WRT 100 or 106, MAT 086, REA 112 and FSS 234 or concurrent enrollment.

*Corequisite:* FSS 218

Assessment and interpretation of results for individualized programs designed for muscular strength, endurance and flexibility. Includes pre-activity screening, assessment, application of results, manipulation of variables in program design, and periodization.

*Information:* This course requires physical activity and is intended for students pursuing the Fitness Profession or Coaching Certificate or for the Physical Education major.

*Offered:* Fall

**FSS 277 Personal Trainer: Cardiovascular Endurance/Body Composition /3 cr. hrs./4 periods (2 lec./2 lab)**

*Prerequisite(s):* WRT 100 or WRT 106, MAT 086, REA 112, and FSS 234 or concurrent enrollment.

Assessment and interpretation of testing results for individualized program design for cardiovascular training, and the skill development of body composition assessment techniques. Includes assessment issues, development of SMART goals, program development, and special considerations. *Information:* This course requires physical activity and is intended for students pursuing the Fitness Professional Certificate.

*Offered:* Spring

**FSS 278 Fitness Professional Practices /2 cr. hrs./4 periods (1 lec., 3 lab)**

*Prerequisite(s):* FSS 276 and 277 or concurrent enrollment.

Intended for students preparing to be personal trainers. Includes hands-on experience working with students/clients enrolled in other FSS courses by helping develop appropriate exercise goals, providing motivation, giving supplemental nutrition information, and demonstrating exercise techniques.

*Offered:* Fall/Spring

**FSS 279 Motor Development /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Examination of developmental changes in motor patterns for children and adults. Includes methods used in evaluating motor skill performance and the selection of appropriate movement experiences.

*Offered:* Spring

**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 gathering and interpreting baseline anthropometric data, the trans-theoretical model, basic nutritional guidelines, exercise/activity guidelines and safety precautions, and developing personal strategies.

*Information:* This course is intended for the Fitness Professional.

*Offered:* Fall

**FSS 281 Personal Trainer Exam Preparation /1 cr. hrs./1 periods (1 lec.)**

*Prerequisite(s):* Consent of Instructor.

Summation of the curriculum presented in the Fitness Professional Certificate program. Includes emphasis on study skills and test taking strategies to prepare for a nationally recognized certification examination for personal trainers.

*Information:* Successful completion of this course does not guarantee a student will pass a nationally recognized certification examination nor does it award a nationally recognized certificate. This course is intended as a capstone course with the majority of the certificate completed and/or concurrently enrolled. Participants must have current CPR and First Aid cards prior to enrollment that are valid throughout the course.

*Offered:* Fall/Spring

**FSS 285 Principles of Athletic Coaching /1-3 cr. hrs./1-3 periods (1-3 lec.)**

*Prerequisite(s):* Consent of instructor.

Surveys the fundamentals of coaching. Includes coaching philosophy, sport philosophy, pedagogy, physiology and management.

*Offered:* Fall/Spring/Summer

**FSS 286 Sports Officiating /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Familiarization with and application of the rules of various sports from the standpoint of an official. Includes current methods and materials to develop competency in executing official rules. Also includes actual experience through service in the college's intramural program and other agencies.

*Offered:* Spring

**FSS 287 Tennis Officiating and Group Tennis Instruction /2 cr. hrs./2 periods (2 lec.)**

Teaching and officiating tennis. Includes basic instructional skills and officiating techniques.

*Will not be offered this year*

**FSS 288 History and Philosophy of Sport and Physical Education /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Historical development and philosophical foundations of contemporary sports and related activities. Includes ancient societies, the Middle Ages, European perspectives, and a chronicle of American athletic tradition and thought.

*Offered:* Fall



**FSS 289 Sports Administration /2 cr. hrs./2 periods (2 lec.)**

Theory, concepts and practices for effective sports program administration. Includes planning, organizing, leading, controlling and financing sports programs and developing a sound philosophical basis for efficient and successful administration.

*Offered:* Fall/Spring **FSS 296 Independent Studies in Fitness and Sport Sciences /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Consent of instructor.

Students independently continue their development in health, physical education and recreation with the help of a faculty member.

*Information:* May be taken two times for a maximum of six credit hours.

*Offered:* Fall/Spring/Summer

**FSS 299 Co-op Related Class in FSS /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in FSS 299WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring/Summer

**FSS 299WK Co-op Work in FSS /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in 299 Co-op Class.

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring/Summer

## PROFESSIONAL ACTIVITIES COURSES FOR STUDENTS PLANNING A MAJOR OR MINOR IN FITNESS AND SPORT SCIENCES

**FSS 208 Professional Activities: Aerobics and Group Fitness / 2 cr. hr./3 periods (1 lec./2 lab)**

*Prerequisite(s):* WRT 100, FSS 234 or concurrent enrollment and for students within the Fitness Professional Certificate.

Aerobic skills and teaching methods for the Fitness and Sport Sciences major. Includes introduction to components of aerobic fitness, teaching an aerobics class, choreography basics, and strength training. Also includes group related fitness activities, specific populations and health concerns, and legal and professional responsibilities.

*Offered:* Spring

**FSS 210 Professional Activities: Baseball /2 cr. hrs./3 periods (1 lec., 2 lab)**

Baseball skills, teaching and coaching methods for the Physical Education Major and for those pursuing the Coaching Certificate. Includes teaching basic skills, skill development, rules, strategies, and offensive and defensive play.

*Offered:* Fall

**FSS 213 Professional Activities: Basketball /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Basketball skills and teaching methods for the Fitness and Sport Sciences major. Includes offense, defense, special situations, and teaching techniques. Also includes participation in the sport.

*Offered:* Spring

**FSS 218 Professional Activities: Weight Training /1 cr. hr./3 periods (3 lab)**

Introduction to basic resistance training principles. Includes the application of anatomy and movement patterns to the biomechanics, selection and analysis of various exercises and training modalities.

*Information:* This course is intended for the Fitness or Physical Education majors, or those pursuing a Professional or Coaching Certificate.

*Offered:* Fall/Spring

**FSS 223 Professional Activities: Racquetball /2 cr. hr./3 periods (1 lab., 2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Racquetball skills and teaching methods for the Fitness and Sport Sciences major. Includes basic techniques and methods, offensive and defensive play, serve strategy, learning theory, and evaluation methods.

*Offered:* Spring

**FSS 224 Professional Activities: Self Defense /2 cr. hr./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Self defense for the Fitness and Sport Sciences major. Includes skill to recognize, avoid, and eliminate potentially dangerous situations, defending yourself, reporting attacks, and support agencies for victims of attack.

*Offered:* Fall

**FSS 225 Professional Activities: Soccer /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Soccer for the Fitness and Sport Sciences major. Includes methods of teaching skills, playing strategies, classroom management, disciplinary policies, and coaching philosophies.

*Offered:* Spring

**FSS 227 Professional Activities: Softball /2 cr. hr./3 periods (1 lec./2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Softball skills and teaching methods for the Fitness and Sport Sciences major. Includes equipment used, offensive and defensive play, strategy, and rules of the game.

*Offered:* Fall

**FSS 230 Professional Activities: Tennis /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Principles of teaching and coaching the sport of tennis. Includes skill development, rules, strategies, and the singles and doubles game.

*Offered:* Fall/Spring

**FSS 231 Professional Activities: Track and Field /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Track and field skills and teaching methods for the Fitness and Sport Sciences major. Includes conditioning, field events, performance, and strategy.

*Offered:* Spring

**FSS 232 Professional Activities: Volleyball /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s):* WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Principles of teaching and coaching the sport of volleyball. Includes skill development, skill progressions, instructional methods, basic rules, and strategies.

*Offered:* Fall

## FOOD SCIENCE AND NUTRITION

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**FSN 055 Gourmet/International Cuisine /2 cr. hrs./3 periods (1 lec., 2 lab)**

Study of international foods with lectures and food preparation by students. Includes history of foods studied.

*Information:* May be taken two times for a maximum of four credit hours.

*Offered:* Fall/Spring/Summer

**FSN 057 Vegetarian Dietary Cookery /2 cr. hrs./3 periods (1 lec., 2 lab)**

Study of food combinations from vegetable sources which supply adequate nutrition. Includes demonstrations in the planning and preparation of foods from plants which supply essential nutrients.

*Offered:* Fall/Spring/Summer

**FSN 113 Food Study /3 cr. hrs./5 periods (2 lec., 3 lab)**

Introduction to the composition of various food types. Includes methods of preparing foods to be flavorful, attractive and nutritious. Also includes emphasis on selection and application of proper nutrients for maintenance of health in persons of all ages.

*Offered:* Fall/Spring/Summer



**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/Summer

**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 "Topics Courses" on page 338.

**FPC 101 Work and Learning in America /1 cr. hr./1 period (1 lec.)**

Development of career and learning objectives. Includes learning and the world of work, careers in the 21st century, and skill development in context. Also includes a focus on the common requirements of all jobs, the skills basic to employment success, and the formal and informal learning necessary for career advancement.

*Will not be offered this year*

**FPC 102 Reading for Information /1 cr. hr./1 period (1 lec.)**

Development of reading skills appropriate to career objectives. Includes reading and the world of work, skills of workplace reading, and skill development in context. Also includes a focus on interpreting the printed work in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 103 Applied Mathematics /1 cr. hr./1 period (1 lec.)**

Development of mathematical skills appropriate to career objectives. Includes mathematics and the world of work, problem solving strategies, and skill development in context. Also includes a focus on basic calculations in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 104 Writing at Work /1 cr. hr./1 period (1 lec.)**

Development of writing skills appropriate to career objectives. Includes writing and the world of work, community through the written word, and skill development in context. Also includes a focus on practical writing in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 105 Applied Technology /1 cr. hr./1 period (1 lec.)**

Development of technology skills appropriate to career objectives. Includes technology and the world of work, understanding technological principles, and skill development in context. Also includes a focus on basic principles of technology in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 106 Observation at Work /1 cr. hr./1 period (1 lec.)**

Development of observation skills appropriate to career objectives. Includes observation, problem solving, and the world of work, strategies for observing and interpreting, and skill development in context. Also includes a focus on observing processes and behaviors at work to solve problems and make decisions.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 107 Teamwork /1 cr. hr./1 period (1 lec.)**

Development of teamwork proficiency appropriate to career objectives. Includes teamwork on the job, essentials for teamwork success, and skill development in context. Also includes a focus on task and relationship skills in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 108 Locating Information /1 cr. hr./1 period (1 lec.)**

Development of skills in locating information from graphical displays appropriate to career objectives. Includes locating information in the world of work, data and types of data displays, and skill development in context. Also includes a focus on basic data formats in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 109 Listening /1 cr. hr./1 period (1 lec.)**

Development of listening skills appropriate to career objectives. Includes listening and the world of work, hearing, listening, and interpreting, and skill development in context. Also includes a focus on literal comprehension, interpretation, and critical listening in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 110 Speaking English on the Job /1 cr. hr./1 period (1 lec.)**

Development of spoken English skills appropriate to career objectives. Includes spoken English and the world of work, key issues in spoken English, and skill development in context. Also includes a focus on basic grammar, diction, and vocabulary in a workplace context.

*Information:* May be taken four times for a maximum of four credit hours.

*Will not be offered this year*

**FPC 150 Problem Solving in the Workplace /3 cr. hrs./3 periods (3 lec.)**

Techniques for analyzing and solving problems associated with providing services and producing goods. Includes contexts for analysis, business and industry challenges and problems, techniques to define specific problems, techniques of analysis, and problem solving protocols and strategies.

*Will not be offered this year*

**FRENCH**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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:* Fall

**FRE 051 Social and Cultural French: Travel /2 cr. hrs./2 periods (2 lec.)**

Introduction to the French language presented in the context of travel, from planning a trip to returning home. Includes geography and traveling in France, words and phrases related to transportation, conversation for hotels, restaurants, and tourist services, and language of health and hygiene.

*Will not be offered this year*

**FRE 052 Social and Cultural French: Cinema /2 cr. hrs./2 periods (2 lec.)**

Viewing and discussing French films from early experimentation to the present. Includes cultural values through cinema in France, major directors within cinema periods, and major films expressing modernism and contemporary French cinema.

*Information:* No prior knowledge of French is required, since sub-titles are provided.

*Offered:* Spring

**FRE 055 Language Study and Travel in Spain, Italy, and France / 2 cr. hrs./2 periods (2 lec.)**

Introduction to French, Italian, and Spanish language presented in the context of travel through these three countries. Includes travel in Spain, Italy, and France, lodging, money, and transportation terminology, culinary traditions, restaurants and markets, and travel destinations.

*Information:* Prior language knowledge is not required.

*Information:* Same as ITA 055 and SPA 055.

*Will not be offered this year*

**FRE 101 Elementary French I /4 cr. hrs./4 periods (4 lec.)**

Introduction to the French language. Includes developing proficiency in listening, speaking, reading, and writing. Also includes French cultural traditions.

*Offered:* Fall/Spring/Summer

**FRE 102 Elementary French II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* FRE 101.

Continuation of FRE 101. Includes increased proficiency in listening, speaking, reading, and writing. Also includes French cultural traditions.

*Offered:* Fall/Spring/Summer

**FRE 106 Beginning Conversation /3 cr. hrs./3 periods (3 lec.)**

Introduction to conversational French. Includes basic oral and written forms, simple grammatical structures to oral and written communication, simple interpersonal communicative interaction, various interpersonal transactions, and cultural perspectives. Also includes reading, writing, speaking, and listening skills with emphasis on oral communication.

*Offered: Fall/Spring*

**FRE 107 Intermediate Conversation /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): FRE 106.*

Continuation of FRE 106. Includes intermediate oral and written communication, complex grammatical structures, intermediate interpersonal communicative interaction through conversations, discuss, question, negotiate, narrate, and summarize concepts in the oral and written forms, and intermediate cultural perspectives. Also includes reading, writing, speaking, and listening skills with emphasis on oral communication.

*Will not be offered this year*

**FRE 201 Intermediate French I /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): FRE 102 or two years of high school French.*

Continuation of FRE 102. Includes an intensive review of grammar in addition to reading selected authors and writing short compositions. Also includes extensive practice in speaking French.

*Information:* This course will be conducted primarily in French.

*Offered: Fall/Spring/Summer*

**FRE 202 Intermediate French II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): FRE 201.*

Continuation of FRE 201. Includes an emphasis on efficient and contemporary language usage.

*Information:* This course will be conducted primarily in French.

*Offered: Fall/Spring/Summer*

**FRE 296 Independent Study in French /1-4 cr. hrs./1-4 periods (1-4 lab)**

*Prerequisite(s): Consent of instructor.*

Independent study in French literature, grammar, or special projects under the supervision of an instructor.

*Information:* May be taken two times for a maximum of eight credit hours.

*Will not be offered this year*

**FRE 297 French Language Seminar /25-4 cr. hrs./25-4 periods (.25-4 lec.)**

*Prerequisite(s): Consent of instructor.*

French language related training. Includes presentations and development of skills in a given area, and topics of timely or limited interest.

*Will not be offered this year*

**GENERAL TECHNOLOGIES MATHEMATICS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**GTM 105 Applied Technical Mathematics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): MAT 086 or satisfactory score on the mathematics assessment test.*

Applied geometry and trigonometry operations. Includes review of basic math operations, angle calculations, elements of geometry, trigonometric functions, and practical applications.

*Offered: Fall/Spring/Summer*

**GEOGRAPHY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**GEO 093 Geography Workshop /5-3 cr. hrs./5-6 periods (.25-1.5 lec., .75-4.5 lab)**

Workshop with an emphasis on geographic and lab techniques using GIS and remote sensing material and software.

*Will not be offered this year*

**GEO 101 Physical Geography: Weather and Climate /4 cr. hrs. 6 periods (3 lec., 3 lab)**

Introduction to the physical elements. Includes weather, climate, vegetation, and soils. Also includes their importance to humans, their interrelationships, resulting patterns, and effects.

*Offered: Fall/Spring/Summer*

**GEO 102 Physical Geography: Land Forms and Oceans /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Introduction to the surface of the earth and the forces of nature that shape it. Includes the study of volcanoes, earthquakes, glaciers, rivers, oceans, and the interrelation of these forces with humans.

*Offered: Fall/Spring/Summer*

**GEO 103 Cultural Geography /3 cr. hrs./3 periods (3 lec.)**

Examination of the human world from a geographic perspective. Includes an exploration of global issues such as regions, maps and geographic scale, culture, population, urbanization, and history and politics.

*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 human social and natural environments in both historical and contemporary contexts. Also includes political, economic, population, and physical geographic topics appropriate for elementary and secondary education

*Offered: Fall*

**GEO 230 Map and Air Photo Interpretation /4 cr. hrs./6 periods (3 lec., 3 lab)**

Fundamentals of map reading and air photo and image analysis Includes introduction to standard cartographic methods and common products such as USGS topographic maps, orthophoto quads, high altitude infrared mapping photography and satellite imagery Also includes applications in physical and social sciences, natural resources, engineering, agriculture, mining, commerce and industrial location.

*Will not be offered this year*

**GEO 233 Geography of Latin America /3 cr. hrs./3 periods (3 lec.)**

An overview of the various social science perspectives that may be employed in the study of Latin America. Includes definitions and perceptions of Latin America, landforms and natural regions, weather and climate, Iberian heritage, conquest, colonialism, and independence, political systems, and race and ethnicity before and after 1492. Also includes arts and popular culture, religion, agriculture, mining, manufacturing and tourism, settlement patterns, urbanization, migration, and development and health.

*Offered: Spring*

**GEO 250 Introduction to Medical Geography /3 cr. hrs./3 periods (3 lec.)**

Spatial aspects of health and disease. Includes disease mapping, etiology, diffusion, and statistical associations. Also includes health care inequities and spatial distribution of health care facilities.

*Offered: Spring*

**GEO 265 Mapping Concepts /1 cr. hr./1 period (1 lec.)**

Introduction to the practical use of maps. Includes fundamental cartographic concepts, terminology and exercises.

*Information:* Same as ANT 265 and ARC 265.

*Will not be offered this year*

**GEO 267 Introduction to Geographic Information Systems / 3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ANT/ARC/GEO 265 or consent of instructor.*

*Recommended: Basic computer skills.*

Introduction to the technology of geographic information systems. Includes the evolution of technology, system components, database concepts, applications, and implementation.

*Information:* Same as ARC 267 and ANT 267.

*Offered: Fall*

**GEO 284 Archaeocartography/Desktop Mapping /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): ARC 265 or concurrent enrollment, CSA 101.*

Cartographic techniques and hardware for computer generation of maps. Includes software for cartography.

*Information:* Same as ANT 284 and ARC 284.

*Will not be offered this year*

**GEO 296 Independent Studies in Geography /5-6 cr. hrs./ .5-12 periods (.25-3 lec., .75-9 lab)**

*Prerequisite(s): Consent of instructor.*

Students independently continue their studies in geography under the supervision of a faculty member.

*Offered: Fall/Spring/Summer*

## GEOLOGY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **GLG 101IN Introductory Geology I: Physical Geology /4 cr. hrs./6 periods (3 lec., 3 lab)**

Introduction to the physical aspects of the earth's crust. Includes rocks and minerals and their relationship to one another. Also includes surface and subsurface processes operating on and in the earth.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall/Spring/Summer

### **GLG 102IN Introductory Geology II: Historical Geology /4 cr. hrs./6 periods (3 lec., 3 lab)**

Recommended: GLG 101.

The history of the earth and life on earth. Includes the sequence of rock layers, former geographic relationships, the fossil record and the nature of ancient environments.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall/Spring/Summer

### **GLG 110 Geological Disasters and Environmental Geology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): GLG 101 or equivalent.

Survey of geologic processes that interact with human activities. Includes emphasis on rivers and floods, landslides, earthquakes, and volcanic action. Also includes problems of water quality, resource availability, and toxic and radioactive waste.

Offered: Spring

### **GLG 140IN Introduction to Oceanography /4 cr. hrs./6 periods (3 lec., 3 lab)**

Introduction to the study of the oceans. Includes geological, chemical, physical and biological oceanography, and the human presence in the ocean.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall

### **GLG 221IN Structural Geology /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): Trigonometry and GLG 101 or equivalent required.

Recommended: GLG 102.

Study of structures from formation and deformation of rocks, of the forces causing such deformations and the resulting geographic features. Includes introduction to field mapping techniques.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Spring

### **GLG 240 Geology of Selected Regions /2-3 cr. hrs./2-3 periods (2-3 lec.)**

Prerequisite(s): GLG 101.

Recommended: GLG 102.

Geologic survey of a specific region. Includes the stratigraphy, structure, historical geology and most important geologic processes operating today. Also includes aspects of resource use by human occupants.

Information: May be taken four times for a maximum of twelve credit hours.

Offered: Fall/Spring/Summer

### **GLG 244IN Geological Field Excursions /1-3 cr. hrs./1-12 periods (0-3 lec., 0-9 lab)**

Prerequisite(s): Consent of instructor.

Field excursions providing encounters with geologic features and processes in a given geographic area. Includes focus on observing, recording and analyzing materials and processes of the selected region. Also includes natural, cultural and economic development associated with the geological environment.

Information: May likely involve overnight camping and possibly moderately strenuous hikes.

Information: May be taken four times for a maximum of twelve credit hours.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall/Spring/Summer

### **GLG 280IN Geology of Arizona /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GLG 101, 102.

Stratigraphy, structure and geologic history of Arizona and adjacent areas. Includes emphasis on discovery of the stories behind today's often spectacular Arizona scenery.

Information: Lab consists of multi-day field excursions.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Offered: Fall

## GERMAN

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **GER 050 Social and Cultural German: Food Traditions and Dining /2 cr. hrs./2 periods (2 lec.)**

Introduction to the German language presented in the context of food traditions and dining. Includes food in the culture of Germany, language of groceries and ingredients, and conversation for dining. Also includes cultural contexts of food, reading recipes, and special ingredients.

Information: Does not include cooking techniques.

Will not be offered this year

### **GER 051 Social and Cultural German: Travel /2 cr. hrs./2 periods (2 lec.)**

Introduction to the German language presented in the context of travel, from planning a trip to returning home. Includes travel in Germany, words, phrases, and beginning conversation related to transportation, conversation for hotels, restaurants, and tourist services, and language of health and hygiene. Also includes terms and principal place names.

Will not be offered this year

### **GER 101 Elementary German I /4 cr. hrs./4 periods (4 lec.)**

Introduction to the German language. Includes developing proficiency in listening, speaking, reading, and writing. Also includes German cultural traditions.

Offered: Fall/Spring/Summer

### **GER 102 Elementary German II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): GER 101 or one year of high school German.

Continuation of GER 101. Includes increased proficiency in listening, speaking, reading, and writing. Also includes German cultural traditions.

Offered: Fall/Spring

### **GER 201 Intermediate German I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): GER 102 or two years of high school German.

Continuation of GER 102. Includes an intensive review of grammar, in addition to reading selected authors and writing short compositions. Also includes extensive practice in speaking German.

Offered: Fall/Spring

### **GER 202 Intermediate German II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): GER 201.

Continuation of GER 201. Includes an emphasis on efficient and contemporary language usage.

Offered: Fall/Spring

### **GER 296 Independent Study in German /1-4 cr. hrs./3-12 periods (3-12 lab)**

Prerequisite(s): Consent of instructor.

Independent study in German literature, grammar, or special projects under the supervision of an instructor.

Information: May be taken two times for a maximum of eight credit hours.

Offered: Fall/Spring

### **GER 297 German Language Seminar /25-4 cr. hrs./25-4 periods (25-4 lec.)**

Prerequisite(s): Consent of instructor.

Reports and presentations on selected subjects related to the German language.

Will not be offered this year

## GREEK

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **GRK 101 Elementary Modern Greek I /4 cr. hrs./4 periods (4 lec.)**

Introduction to the modern Greek language. Includes basic Greek alphabet system, basic Greek grammar structures, composing Greek, formulating answers in Greek, and Greek culture. Also includes a foundation in listening, speaking, reading, writing, and cultural awareness.

Will not be offered this year

### **GRK 102 Elementary Modern Greek II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): GRK 101.

Continuation of GRK 101. Includes additional Greek grammar and structure, additional topics in Greek, additional composing in Greek, and additional Greek culture. Also includes an additional level of listening, speaking, reading, writing, and cultural awareness.

Will not be offered this year



**GRK 201 Intermediate Modern Greek I /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): GRK 102.*

Continuation of GRK 102. Includes intermediate grammar structures, response to unanticipated questions, political, economic, and social vocabulary in readings and writings, intermediate literary interpretation, and intermediate Greek cultural topics.

*Will not be offered this year***GRK 202 Intermediate Modern Greek II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): GRK 201.*

Continuation of GRK 201. Includes additional intermediate Greek grammar and sentence structures, oral descriptions and narration of intermediate level topics, intermediate level responses to complex topics, and interpretation of literary works.

*Will not be offered this year***HEALTH CARE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HCA 102 Drug Calculations /1 cr. hr./1 period (1 lec.)**

Computation of medication dosage. Includes abbreviations related to medications, systems of measurement, drug labels, and medication orders while focusing on accurate dosage calculation of medication.

*Offered: Fall/Spring***HCA 154 Introduction to Health Care /3 cr. hrs./3 periods (3 lec.)**

Survey of the health sciences field. Includes the health care delivery systems, health careers, health science fundamentals and how to relate to the patient as a person.

*Will not be offered this year***HCA 155 Introduction to Pharmacology /3 cr. hrs./3 periods (3 lec.)**

Application of the nursing process to actions, uses and effects of medications. Designed for nursing students and includes classifications, actions, uses, contraindications, doses, routes of administration, side effects, interactions, and incompatibilities. Also includes the application of the nursing process to the safe administration of medications and appropriate client/family education.

*Offered: Fall/Spring***HEALTH CONTINUING EDUCATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HCE 250 Intravenous Medication Therapy /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): Licensed LPN or consent of instructor.*

Techniques for licensed personnel to administer IV therapy with selected premixed medications and solutions. Includes principles of IV therapy, fluid balance in the body, local and systemic complications, therapy and patient care, medication delivery equipment, therapy monitoring and documentation, and skills demonstration.

*Offered: Fall/Spring/Summer***HCE 251 Initiating Intravenous Therapy /1 cr. hrs./1 periods (1 lec.)***Prerequisite(s): Licensed Practical Nurse or consent of instructor.*

Theory and practice needed for the current LPN to start, maintain, and discontinue intravenous (IV) therapy (peripheral venipuncture) under the supervision of a registered nurse. Includes anatomy and physiology, sites for venipuncture, fluid replacement therapy, infusion equipment, intravenous solutions, flowrate of IV infusion, starting an IV infusion, nursing management of IV therapy, skills demonstration and practice, and clinical practice and certification.

*Offered: Fall/Spring/Summer***HEALTH EDUCATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HED 136 Introduction to Health Sciences /3 cr. hrs./3 periods (3 lec.)**

Contemporary health-related issues for all dimensions of the individual. Includes aspects of physical, mental, social, and emotional health. Also includes health promotion and disease prevention.

*Will not be offered this year***HED 140 First Aid and Cardiopulmonary Resuscitation /1 cr. hr./1 period (1 lec.)**

Theory and practice in the following areas: Standard first aid and treatment of cardiopulmonary respiratory emergencies.

*Information:* Same as HED 140A and B.*Will not be offered this year***HED 140A First Aid /.5 cr. hr./5 period (.5 lec.)**

Standard first aid for the immediate care for victims of injuries or sudden illness. Includes further care if medical help is delayed or is not available and urgent care needed in life threatening situations, such as arrested breathing, heart attack, stroke, heavy bleeding, poisoning and shock.

*Information:* HED 140A and 140B together constitute HED 140.*Will not be offered this year***HED 140B Cardiopulmonary Resuscitation (CPR) /1.5 cr. hr./5 period (.5 lec.)**

Emergency first aid for respiratory failure and cardiac arrest. Includes one and two rescuer techniques for conscious or unconscious adults and children.

*Information:* HED 140A and 140B together constitute HED 140.*Will not be offered this year***HEBREW**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HEB 101 Elementary Modern Hebrew I /4 cr. hrs./4 periods (4 lec.)**

Introduction to elementary modern Hebrew language. Includes basic Hebrew alphabet system, basic Hebrew grammar structures, writing and oral proficiency, listening and reading comprehension, and Israeli/Jewish culture.

*Will not be offered this year***HEB 102 Elementary Modern Hebrew II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): HEB 101.*

Continuation of HEB 101. Includes additional Hebrew grammar and structure, additional writing and oral proficiency, listening and reading comprehension, and additional Israeli/Jewish culture.

*Will not be offered this year***HEB 201 Intermediate Modern Hebrew I /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): HEB 102.*

Continuation of HEB 102. Includes intermediate grammar and structures, intermediate writing and oral proficiency, intermediate listen and reading comprehension, and intermediate Israeli/Jewish culture.

*Will not be offered this year***HEB 202 Intermediate Modern Hebrew II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): HEB 201.*

Continuation of HEB 201. Includes additional intermediate Hebrew grammar and structures, additional intermediate writing and oral proficiency, additional intermediate listen and reading comprehension, and additional intermediate Israeli/Jewish culture.

*Will not be offered this year***HISTORY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HIS 090 Community Studies Past and Present /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): Consent of instructor.*

Structured project experience in community history. Includes library research, oral history interviews, conceptualization of a project, writing the material, guest writer contributions, and finalization of a project.

*Information:* May be taken two times for a maximum of six credit hours.*Offered: Fall/Spring***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 the pre-historic to the historic period, Greco-Roman world, Early, Central, and Late Middle Ages, and Renaissance and Reformation.

*Offered: Fall/Spring /Summer***HIS 102 Introduction to Western Civilization II /3 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 105 Introduction to Chicano Studies /3 cr. hrs./3 periods (3 lec.)**

Chicano(a) life since 1848 and the struggles for self-determination. Includes the diverse perspectives of theory, research, history, literature, art, culture, society, political economy and traditions within the discipline of Chicano(a) Studies. Also includes humanities of Chicano(a) origins in Mesoamerica, New Spain and independent Mexico.

*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. Includes Formative Period (prehistory-221 B.C.), unification and expansion (221 B.C.-221 A.D.), period of disunity (222-588), flowering of Chinese culture (589-1279), impact of the Mongols on Chinese civilization (1280-1368), Ming Dynasty peace and prosperity (1368-1644), Qing Dynasty -The Manchu Conquest (1644-1911), Republican China (1912-1949), and People's Republic of China (1949-).

*Offered: Fall/Spring/Summer*

**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 Formative Period (prehistory-250 A.D.), influence of Chinese civilization on Japan (300-794), emergence of uniquely Japanese cultural forms and Heian Period (794-1185), Shogun -establishment of military government and Kamakura Period (1185-1336), civil war and the reunification of Japan and Ashikaga Period (1336- 1573), Tokugawa Period (1600-1867), Meiji Period (1868- 1912), Taisho Period (1912-1925), Showa Period (1926-1989), and Heisei Period (1990- ).

*Offered: Fall/Spring/Summer*

**HIS 115 Civilization of India /3 cr. hrs./3 periods (3 lec.)**

Religious, cultural, and historical traditions of India from ancient times to the present. Includes origins of Indian civilization, heterodox challenge and Hindu response, coming of Islam and the new social vision, eclipse of Islam and the rise of Europe, Indian polity in transition, and nationhood and the modern world.

*Will not be offered this year*

**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: Fall/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 oral traditions, Spanish, Mexican and Catholic influences, and ceremonial associations. Also includes emphasis on leadership and survival strategies.

*Offered: Fall/Spring*

**HIS 127 History and Culture of the Mexican-American in the Southwest /3 cr. hrs./3 periods (3 lec.)**

Historical survey of the Mexican-American people from their indigenous origins in Meso-America and the Gran Chichimeca to the present in the United States Southwest and the Border region. Includes the totality of Chicano life in the United States since the Treaty of Guadalupe Hidalgo and the challenges into the 21st century. Also includes settlement patterns, society and political economy of the Spanish Empire and Mexico in El Norte.

*Information:* Same as ANT 127.

*Offered: Fall/Spring/Summer*

**HIS 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.

*Information:* Same as ART 135 and ANT 135.

*Offered: Spring*

**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 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 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 Indian origins, adaptations to cultural, political and economic changes, and current status. Also includes emphasis on federal Indian policies and leadership.

*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.

*Information:* Same as ANT 150.

*Offered: Fall/Spring/Summer*

**HIS 160 History and People of Latin America I /3 cr. hrs./3 periods (3 lec.)**

Survey of the history and people of Latin America from indigenous origins to independence. Includes geography, indigenous Latin America, European background, new world, and movements for independence in Spanish America.

*Offered: Fall/Spring/Summer*

**HIS 161 History and People of Latin America II /3 cr. hrs./3 periods (3 lec.)**

Survey of the history and people of Latin America from nation-building to the present. Includes 19th Century, 20th Century, United States and Latin America, and Latin America today.

*Offered: Fall/Spring/Summer*

**HIS 165 History of Mexico I /3 cr. hrs./3 periods (3 lec.)**

Survey of Mexican history from pre-Columbian periods through Spanish conquest and colonization. Includes the movement for independence.

*Will not be offered this year*

**HIS 166 History of Mexico II /3 cr. hrs./3 periods (3 lec.)**

Survey from early nation-building to the present. Includes the struggles for economic, political and social modernity. Also includes relationship with the United States.

*Will not be offered this year*

**HIS 170 History and People of Africa /3 cr. hrs./3 periods (3 lec.)**

Survey of the political and cultural history of Africa from pre-historic settlements to the modern era. Includes earliest people of Africa, internal development of African societies, impact of Islam, emerging world economy, age of European expansion war and post war period, anti-colonial movements, and the Third World.

*Offered: Fall/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: Fall*

**HIS 244 Western America /3 cr. hrs./3 periods (3 lec.)**

Surveys of the patterns of American expansion and settlement in the Western United States. Includes mythology and terminology, factors that made the West, political power and warfare, cultural and gender contributions and historiography of the American West.

*Offered: Fall*

**HIS 253 History of Women in the United States: Early America /3 cr. hrs./3 periods (3 lec.)**

Survey of American women's history from colonization to the turn of the century. Includes history and politics of the region and country, women of the new republic, transformation of a nation, civil war and reconstruction, and late 19th century.

*Offered: Fall/Spring/Summer*

**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 throughout the 20th century. Includes early 20th century gender, race/ethnicity, class formation, women and war, civil rights, feminist, and other social movements, and feminisms: change since 1970s.

*Offered: Fall/Spring/Summer*

**HIS 274 The Holocaust / 3 cr. hrs./3 periods (3 lec.)**

Causes and legacies of the Nazi assault on humanity. Includes history of hate in Europe, historical antecedents and preconditions, Third Reich and creation of the racial state, from isolation to the "Final Solution", aftermath (1945-), and the Holocaust and relevant events.

*Offered: Fall/Spring/Summer*

**HIS 277 History of the Middle East: From the Rise of Islam to 1453 / 3 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, Mamluk Egypt, and the Ottoman Turks.

*Offered: Fall*

**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: Spring*

**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 Two, and postwar world. Also includes changes created in society, government, and international relations as a result of the two wars.

*Offered: Fall/Spring/Summer*

**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 (U.S.) involvement in the Middle East from the rise of Zionism in 19th century Europe to the present. Includes origins of modern Israel and Arab/Israeli relationships up to 1917, Palestine mandate, Zionist state-building, and Jewish/Arab relations up to 1948, State of Israel relations with Arab states, search for security, and U.S.'s role between 1948-1967, Arab/Israeli/Palestinian relations, quest for peace, and U.S.'s role between 1967-1984, Palestinian/Arab/Israeli relations and U.S.'s involvement in global and regional events from 1984 to the present.

*Offered: Fall/Spring/Summer*

**HIS 296 Independent Studies in History / 1-4 cr. hrs./1-16 periods (4 lec., 12 lab)**

*Prerequisite(s): Consent of instructor.*

Independent study in history. Includes topic identification, research plan, data gathering, and presentation of findings.

*Information:* May be taken two times for a maximum of four credit hours.

*Offered: Fall/Spring/Summer*

**HISTOTECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HTP 100 Histotechniques I / 3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): BIO 210.*

Introduction to the fundamental techniques of histology. Includes fixation, processing, instrumentation, safety, laboratory mathematics and solution preparation. Also includes nuclear, cytoplasmic, carbohydrate, and amyloid staining.

*Offered: Spring*

**HTP 200 Histotechniques II / 3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): HTP 100.*

Continuation of HTP 100. Introduction to the fundamental techniques of histology. Includes connective and muscle tissue, nerves, microorganisms, pigments, minerals, and cytoplasmic granules. Also includes immunohistochemistry, enzyme histochemistry, and electron microscopy.

*Offered: Spring*

**HTP 299 Co-op Related Class in HTP / 1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): Consent of instructor.*

*Corequisite(s): HTP 299WK.*

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.

*Offered: Fall/Spring/Summer*

**HTP 299WK Co-op Work in HTP / 1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s): Consent of instructor.*

*Corequisite(s): HTP 299.*

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors in research, industry or clinics.

*Information:* May be taken four times for a maximum of twelve credit hours.

*Information:* At least one cooperative education experience must take place in a clinical setting.

*Offered: Fall/Spring/Summer*

**HONORS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HON 101 Honors Colloquium / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Admission to the Honors program.*

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.

*Offered: Fall/Spring*

**HON 210 College Honors Advisory Council / 1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): HON 101 or concurrent enrollment.*

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 Experience / 1-3 cr. hrs./1-3 periods (1-3 lab)**

*Recommended: Consult instructor for prerequisites specific to planned excursion.*

Field excursions to provide direct experience of foreign cultures and people and of academic development events through travel and study. Includes a range of visits to foreign or domestic cultural and educational sites, local field excursions, or attendance at conferences and meetings.

*Information:* May require foreign or domestic travel expenses.

*Information:* May be taken four times for a total of twelve credit hours.

*Offered: Fall/Spring*

**HON 296 Honors Independent Study Project / 1-3 cr. hrs./1-3 periods (1-3 lec.)**

*Prerequisite(s): HON 101.*

Exploration of special interest areas for Honors students. Content to be determined jointly by student and faculty mentor.

*Information:* May be taken three times for a maximum of three credit hours.

*Offered: Fall/Spring/Summer*

**HOSPITALITY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HRM 100 Introduction to the Hospitality Industry / 3 cr. hrs./3 periods (3 lec.)**

Overview of the hospitality, travel and tourism industry. Includes hospitality careers, foodservice, restaurant organization, hotels and hotel organization, club organization, meeting industry, management and leadership, human resources, marketing and selling, marketing communications, management companies, franchising, and ethics in hospitality management.

*Offered: Fall/Spring*

**HRM 101 Front Office Procedures / 3 cr. hrs./3 periods (3 lec.)**

Principles and procedures for front office operations in hotels and resorts. Includes classification of hotels, hotel organization, front office operations, reservations, registration, front office accounting, check out and settlement, night audit, planning and evaluating operations, revenue management, and managing human resources.

*Offered: Fall/Spring*

**HRM 102 Hospitality Financial Accounting I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 082 or equivalent score on the mathematics assessment test.

Concepts and procedures used in the hospitality financial cycle. Includes accounting theory and practice, business organization, financial statement, chart of accounts, asset, liability, and equity accounts, revenue and expense accounts, effects of business transactions, debits and credits, accounting records, journalizing and posting, month-end accounting process, year-end accounting process, and computer applications.

*Will not be offered this year*

**HRM 104 Hotel Food and Beverage Management /3 cr. hrs./3 periods (3 lec.)**

Hotel food and beverage operations and management. Includes volume food management history, management structures and functions, personnel management, facilities, tools, and equipment, purchasing and storage, beverage management and service, controlling costs/quality assurance, food preparation techniques, sanitation, liability issues, menus and recipes, and food products.

*Will not be offered this year*

**HRM 120 Meetings and Convention Management I /3 cr. hrs./3 periods (3 lec.)**

Basic principles of the meetings, convention, and trade show industry. Includes types of meetings, meetings as a social phenomenon, economic impact, suppliers and servicers to the industry, and the role of the meeting planner.

*Will not be offered this year*

**HRM 130 Meetings and Convention Management II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* HRM 120.

Principles for the professional meeting manager. Includes site selection, convention and visitors bureau, negotiations, contracts and lease agreements, program planning, budgeting and financial management, liability and insurance, housing, facilities, food and beverage arrangements, transportation, audio-visual equipment, and exhibition arrangements.

*Will not be offered this year*

**HRM 150 Executive Housekeeping I /3 cr. hrs./3 periods (3 lec.)**

Foundations and applications of housekeeping operations. Includes housekeeping techniques, organizational planning and laundry operations, and procedures and guidelines for security and safety.

*Offered: Fall/Spring*

**HRM 150A Executive Housekeeping I: Housekeeping Techniques /1 cr. hr./1 period (1 lec.)**

Organization and maintenance of a housekeeping department. Includes purpose, standards, procedure development, cleaning equipment, housekeeping chemicals, and interior finishes and partnerships.

*Information:* HRM 150A, 150B, and 150C together constitute HRM 150.

*Will not be offered this year*

**HRM 150B Executive Housekeeping I: Operational Planning and Laundry Operations /1 cr. hr./1 period (1 lec.)**

Introduction to the operational planning and laundry operations components of executive housekeeping. Includes material planning, staffing for housekeeping operations, procedures and standards of operational planning, hotel housekeeping daily routines and subroutines, and the justifications and considerations of an on-premise laundry.

*Information:* HRM 150A, 150B, and 150C together constitute HRM 150.

*Will not be offered this year*

**HRM 150C Executive Housekeeping I: Security and Safety /1 cr. hr./1 period (1 lec.)**

OSHA regulations, inspection, penalties, and compliance. Includes OSHA inspection, training for safety, handling chemicals safely, bloodborne pathogens, and safety and security.

*Information:* HRM 150A, 150B, and 150C together constitute HRM 150.

*Will not be offered this year*

**HRM 151 Executive Housekeeping II /3 cr. hrs./3 periods (3 lec.)**

Foundations and applications of sanitation operations. Includes microbiology, chemical controls, and pest control.

*Will not be offered this year*

**HRM 151A Executive Housekeeping II: Microbiology /1 cr. hr./1 period (1 lec.)**

Principles and methods to control infection. Includes infection control program, bacteria, infection, controlling infection, managing linens and waste, and the housekeeping role in infection control.

*Information:* HRM 151A, 151B, and 151C together constitute HRM 151.

*Will not be offered this year*

**HRM 151B Executive Housekeeping II: Chemical Controls /1 cr. hr./1 period (1 lec.)**

Use of chemicals and their applications in the workplace. Includes cleaning process, types of soil, chemistry for the non-chemist, building blocks of modern cleaners, soaps and detergents, types of cleaners, and chemical safety.

*Information:* HRM 151A, 151B, and 151C together constitute HRM 151.

*Will not be offered this year*

**HRM 151C Executive Housekeeping II: Pest Control /1 cr. hr./1 period (1 lec.)**

Principles and methods for controlling pests. Includes pest identification, pest control, pesticides, labels and labeling, safe use of pesticides, pesticide equipment, laws and regulations, and choosing a pest control service.

*Information:* HRM 151A, 151B, and 151C together constitute HRM 151.

*Will not be offered this year*

**HRM 152 Executive Housekeeping III /3 cr. hrs./3 periods (3 lec.)**

Foundations and applications of financial operations. Includes purchasing, accounting, and budgets.

*Will not be offered this year*

**HRM 152A Executive Housekeeping III: Purchasing /1 cr. hr./1 period (1 lec.)**

Procurement of supplies and equipment. Includes quality, quantity control and materials management, price determination, vendor selection and relations, negotiation techniques, purchasing law, systems and procedures, data processing, and purchasing management.

*Information:* HRM 152A and 152B together constitute HRM 152.

*Will not be offered this year*

**HRM 152B Executive Housekeeping III: Accounting/Budgets /2 cr. hrs./2 periods (2 lec.)**

Principals, concepts, and accounting processes conducted by businesses. Includes overview, principles and concepts of accounting, accounting terms, records, posting information, controlling accounts, discounts and interest, accounting and bookkeeping, merchandise inventory, and budget usage.

*Information:* HRM 152A and 152B together constitute HRM 152.

*Will not be offered this year*

**HRM 153 Executive Housekeeping IV /3 cr. hrs./3 periods (3 lec.)**

Foundations and applications of selected housekeeping services. Includes interior design, waste management, and laundry and linen.

*Will not be offered this year*

**HRM 153A Executive Housekeeping IV: Interiors /1 cr. hr./1 period (1 lec.)**

Interior environments for facilities. Includes history of interior design, elements and principals of design, size and content of custodial facilities, maintainability, color, textiles, lighting, walls and wallcovering decorating tips, wall groupings, flooring, furniture, and master planning.

*Information:* HRM 153A, 153B, and 153C together constitute HRM 153.

*Offered: Will not be offered this year*

**HRM 153B Executive Housekeeping IV: Waste Management /1 cr. hr./1 period (1 lec.)**

Effective handling of waste stream. Includes regulatory overview, waste minimization, waste stream analysis, incineration, recycling, and general waste disposal consideration.

*Information:* HRM 153A, 153B, and 153C together constitute HRM 153.

*Will not be offered this year*

**HRM 153C Executive Housekeeping IV: Laundry and Linen /1 cr. hr./1 period (1 lec.)**

Functions of a laundry and linen service with emphasis on health care applications. Includes linen processing, laundering, textiles, linen distribution, linen control, and quality control.

*Information:* HRM 153A, 153B, and 153C together constitute HRM 153.

*Will not be offered this year*

**HRM 199 Co-op Related Class in HRM /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in HRM 199WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered: Fall/Spring*

**HRM 199WK Co-op Work in HRM /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in HRM 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*Offered: Fall/Spring*



**HRM 202 Hospitality Financial Accounting II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* HRM 102.

Concepts and procedures used in the intermediate hospitality financial accounting cycle. Includes hotel revenue accounting and controls, hotel expense accounting, periodic inventory method, hotel financial statements, statement of cash flows, property and equipment accounting, other noncurrent asset accounting, inventory accounting, payroll accounting, internal controls, and selected accounting topics.

*Will not be offered this year*

**HRM 211 Hospitality Sales and Marketing Application /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Consent of Instructor.

Principles and techniques of sales and marketing. Includes sales and marketing office organization, sales techniques, advertising, public relations, publicity and marketing a plan.

*Information:* See advisor.

*Will not be offered this year*

**HRM 235 Hospitality Law /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* HRM 100.

Examination of the legal aspects of hospitality management. Includes basic legal principles governing hospitality operation, hotel-guest relationship, hotel's duties to guests and others, laws relating to restaurants, foodservice, and bars, and laws relating to hotel employees and general hotel operations.

*Offered:* Fall/Spring

**HRM 245 Hospitality Human Resource Management /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* HRM 100.

Examination of personnel issues. Includes recruitment, selection, orientation, training, wage and benefit, legal issues, and employee appraisal.

*Offered:* Fall/Spring

**HRM 297 Hospitality Seminar /25-4 cr. hrs./25-16 periods (25-4 lec., 25-12 lab)**

*Prerequisite(s):* Consent of instructor and participation.

Hospitality job-related training and participation. Includes presentations by specialists in a given area and topics of timely or limited interest, practical application of classroom and on-the-job experience, seminars may include theory and practices within the industry.

*Will not be offered this year*

**HRM 299 Co-op Related Class in HRM /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Minimum of 12 credits of HRM courses or one year experience in the field.

*Corequisite(s):* Concurrent enrollment in HRM 299WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring

**HRM 299WK Co-op Work in HRM /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s):* Minimum of 12 credits of HRM courses or one year experience in the field.

*Corequisite(s):* Concurrent enrollment in HRM 299 Co-op Related Class.

A supervised cooperative work program for students in a related occupation area. Instructor coordinates with students and their supervisors. Variable credit is available by special arrangement.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring

## HUMAN RESOURCES

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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 101A Human Resources Management: Environment and Legal Issues /1 cr. hr./1 period (1 lec.)**

Environment and legal issues associated with human resources management. Includes competitive challenges and human resources management, demographic and employee concerns, the partnerships of line managers and HR Departments, equal employment opportunities, and the legal and regulatory environment.

*Information:* HRS 101A, 101B, and 101C together constitute HRS 101.

*Will not be offered this year*

**HRS 101B Human Resources Management: Recruitment Compensation, and Training /1 cr. hr./1 period (1 lec.)**

Recruitment, compensation, and training issues associated with human resources management. Includes relationship of job requirements and HRS functions, job analysis and design, Human Resources Planning (HRP), elements of effective HRP, recruiting within and outside the organization and protected classes, matching people and jobs, sources of information about job candidates, employment tests, the employment interview, reaching a selection decision, strategic compensation planning, components of the wage mix, job evaluation systems, the compensation structure, compensation issues, employee benefits, setting performance measures, incentive plans, and training and development.

*Information:* HRS 101A, 101B, and 101C together constitute HRS 101.

*Will not be offered this year*

**HRS 101C Human Resources Management: Labor Relations /1 cr. hr./1 period (1 lec.)**

Labor relations and human resources management. Includes employee rights, disciplinary policies and procedures, appealing disciplinary actions, alternative dispute-resolution procedures, organizational ethics in employee relations, governmental regulation of labor relations, the labor relations process, structures, functions, and leadership of labor unions, labor relations in the public sector, contemporary challenges to labor organizations, the bargaining process, trends in collective bargaining, the labor agreement, and administration of the labor agreement.

*Information:* HRS 101A, 101B, and 101C together constitute HRS 101.

*Will not be offered this year*

**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 independent contractors, unions, and lawyers and legal research.

*Offered:* Fall/Spring/Summer

**HRS 102A Human Resource Law: Employment and Compensation /1 cr. hr./1 period (1 lec.)**

Legal issues associated with employment and compensation. Includes hiring, personnel practices, wages and hours, and employee taxes.

*Information:* HRS 102A, 102B, and 102C together constitute HRS 102.

*Will not be offered this year*

**HRS 102B Human Resource Law: Benefits, FMLA, and Health/Safety /1 cr. hr./1 period (1 lec.)**

Legal issues associated with benefits, family and medical leave (FMLA), and health/safety. Includes laws, statutes, and ordinances concerning employee benefits, family and medical leave, and health and safety.

*Information:* HRS 102A, 102B, and 102C together constitute HRS 102.

*Will not be offered this year*

**HRS 102C Human Resource Law: Discrimination, ADA, and Termination /1 cr. hr./1 period (1 lec.)**

Legal issues associated with discrimination, ADA, and termination. Includes laws, statutes, and ordinances concerning illegal discrimination, workers with disabilities, and termination. May also include independent contractors, unions, and lawyers and legal research.

*Information:* HRS 102A, 102B, and 102C together constitute HRS 102.

*Will not be offered this year*

**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, incentives for non-management employees, incentives for management employees, incentives for executive employees, and gain-sharing incentive plans.

*Offered:* Fall/Spring/Summer

**HRS 103A Managing Compensation /1 cr. hr./1 period (1 lec.)**

Study of compensation management systems. Includes strategic compensation planning, components of the wage mix, job evaluation systems, the compensation structure, governmental regulation of compensation, and significant compensation issues.

*Information:* HRS 103A, 103B, and 103C together constitute HRS 103.

*Will not be offered this year*



**HRS 103B Employee Benefits /1 cr. hr./1 period (1 lec.)**

Study of issues in the area of employee benefits. Includes employee benefits programs, employee benefits required by law, discretionary major employee benefits, and employee services.

Information: HRS 103A, 103B, and 103C together constitute HRS 103.

*Will not be offered this year*

**HRS 103C Incentive Rewards /1 cr. hr./1 period (1 lec.)**

Study of incentive compensation plans used to motivate employees. Includes reasons and requirements for incentive plans, setting performance measures, administering incentive plans, incentives for nonmanagement employees, incentives for management employees, incentives for executive employees, and gainsharing incentive plans.

Information: HRS 103A, 103B, and 103C together constitute HRS 103.

*Will not be offered this year*

**HRS 104 Job Requirements, Recruitment, and Personnel Selection / 3 cr. hrs./3 periods (3 lec.)**

Concepts, techniques, and regulations that apply to job requirements, recruitment, and personnel selection. Includes relationships of job requirements and HRS functions, job analysis, job design, relationships of job requirements and HRS functions, job analysis, job design, matching people and jobs, sources of information about job candidates, employment tests, the employment interview, and reaching a selection decision.

Offered: Fall/Spring/Summer

**HRS 104A Job Requirements and Employee Contributions /1 cr. hr./1 period (1 lec.)**

Concepts, techniques, and regulations that apply to job requirements and employee contributions. Includes relationships of job requirements and HRS functions, job analysis, and job design.

Information: HRS 104A, 104B, and 104C together constitute HRS 104.

*Will not be offered this year*

**HRS 104B Human Resources Planning and Recruitment /1 cr. hr./1 period (1 lec.)**

Concepts, techniques, and regulation that apply to human resources planning and recruitment. Includes human resources planning, elements of effective HRP, recruiting within the organization, recruiting outside the organization, and recruiting protected classes.

Information: HRS 104A, 104B, and 104C together constitute HRS 104.

*Will not be offered this year*

**HRS 104C Employee Selection /1 cr. hr./1 period (1 lec.)**

Concepts, techniques, and regulations that apply to selection of personnel. Includes matching people and jobs, sources of information about job candidates, employment tests, the employment interview, and reaching a selection decision.

Information: HRS 104A, 104B, and 104C together constitute HRS 104.

*Will not be offered this year*

**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 interviews.

Offered: Fall/Spring/Summer

**HRS 105A Training /1 cr. hr./1 period (1 lec.)**

Training activities for effective job performance. Includes the scope of training, conducting the needs assessment, designing the training program, implementing the training program, evaluating the training program, and special topics in training and development.

Information: HRS 105A, 105B, and 105C together constitute HRS 105.

*Will not be offered this year*

**HRS 105B Career Development /1 cr. hr./1 period (1 lec.)**

Career development skills to integrate individual employee needs with those of the organization. Includes elements of career development programs, career development and management succession, career development for a diverse workforce, and personal career development.

Information: HRS 105A, 105B, and 105C together constitute HRS 105.

*Will not be offered this year*

**HRS 105C Appraising and Improving Performance /1 cr. hr./1 period (1 lec.)**

Introduction to performance appraisal procedures to enhance productivity and facilitate progress towards strategic goals. Includes performance

appraisal programs, developing an effective appraisal program, performance appraisal methods, and appraisal interviews.

Information: HRS 105A, 105B, and 105C together constitute HRS 105.

*Will not be offered this year*

**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: Fall/Spring

**HRS 106A Employee Rights and Discipline /1 cr. hr./1 period (1 lec.)**

Exploration of issues in the area of employee rights and discipline. Includes employee rights, disciplinary policies and procedures, appealing disciplinary actions, and organizational ethics in employee relations.

Information: HRS 106A, 106B, and 106C together constitute HRS 106.

*Will not be offered this year*

**HRS 106B The Dynamics of Labor Relations /1 cr. hr./1 period (1 lec.)**

Exploration of the dynamics of labor relations. Includes government regulation of labor relations, the labor relations process, structures, functions, and leadership of labor unions, labor relations in the public sector, and contemporary challenges to labor organizations.

Information: HRS 106A, 106B, and 106C together constitute HRS 106.

*Will not be offered this year*

**HRS 106C Collective Bargaining and Contract Administration / 1 cr. hr./1 period (1 lec.)**

Exploration of issues in the area of collective bargaining and contract administration. Includes the bargaining process, trends in collective bargaining, the labor agreement, and administration of the labor agreement.

Information: HRS 106A, 106B, and 106C together constitute HRS 106.

*Will not be offered this year*

**HUMANITIES**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**HUM 101 Introduction to Humanities /3 cr. hrs./3 periods (3 lec.)**

Introduction to Humanities. Includes discussion of the principles of and examples from both Western and non-western traditions covering art/architecture, poetry, drama, music/dance, prose, religion, and philosophy from the ancient world to 1400.

*Will not be offered this year*

**HUM 107 Humanities Through the Arts /3 cr. hrs./3 periods (3 lec.)**

Humanities through a study of major art forms. Includes an introduction to art, film, drama, music, literature, painting, sculpture, and architecture.

*Will not be offered this year*

**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 projects to be determined between the student and the instructor.

*Will not be offered this year*

**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 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/Summer*

**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/Summer*

## INTERIOR DESIGN

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**DES 096 Independent Study in Preparation for Interior Design /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

Developmental level of independent work on a special project not included in regular courses. The student is required to obtain a sponsoring instructor in this area and establish objectives, a procedure, and a method of evaluation.

*Information:* May not be used for meeting program requirements.

*Offered: Fall/Spring/Summer*

**DES 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/Spring/Summer*

**DES 111 Fundamentals of Design /3 cr. hrs./4 periods (2 lec., 2 lab)**

Fundamentals and theories of design. Includes elements and principles of design, design practices, two dimensional (2D) and three dimensional (3D) compositions, and portfolio projects.

*Offered: Fall/Spring*

**DES 122 Graphic Communication 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/Spring/Summer*

**DES 152 Color and Lighting Theory /3 cr. hrs./3 periods (3 lec.)**

Design concepts for interior design color and lighting. Includes vision, perception, color and lighting theories, color schemes, design concepts, techniques and applications, and psychological implications.

*Offered: Spring*

**DES 155 Space Planning I /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Recommended: DES 111*

Theory and methods of information gathering for design projects. Includes programming and planning, research and observation, diagramming methods, skills in drafting, and human behavior.

*Offered: Fall/Spring*

**DES 160 Fabrics for Interiors /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Recommended: DES 111.*

Analysis, evaluation, and application of fabrics. Includes history of fabrics, fiber content, fabric construction, fabric finishes and techniques and fabric trends.

*Offered: Fall/Spring*

**DES 196 Independent Study in Design /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

Independent readings or special projects. Content to be determined by conference between student and instructor.

*Offered: Fall/Spring*

**DES 197 Seminar for Designers /1-8 cr. hrs./1-24 periods (0-8 lec., 0-24 lab)**

*Prerequisite(s):* Consent of instructor.

Supervised group learning experience of varied durations and locations of design interest. Includes visits to historical or contemporary sites and local field trips and excursions or qualified educational tours abroad.

*Information:* May be taken three times for a maximum of twenty-four credit hours.

*Offered: Summer*

**DES 212 History of Interior Architecture and Furniture from the Egyptian Period to 1900 /3 cr. hrs./3 periods (3 lec.)**

Survey of historical architecture, interior treatments, furnishings, and decorative arts. Includes the Classics, Middle Ages, Renaissance, and Early American.

*Offered: Fall*

**DES 213 History of Interior Architecture and Furniture from 1900 to 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 Period, Revolution and the Avant-Garde, Contemporary designs, and issues and trends.

*Offered: Spring*

**DES 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.

*Offered: Spring*

**DES 222 Graphic Communication II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* DES 122.

*Recommendation: CAD 158.*

Continuation of DES 122. Includes advanced techniques in black and white and color, measured drawings, fundamental design in graphic communications, and rendering for interior design.

*Offered: Spring*

**DES 230 Interior Design Business and Professional Practices /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DES 111, 122, 155.

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.

*Information:* Assessment in Mathematics at the MAT 086 level or higher recommended.

*Offered: Spring*

**DES 255 Space Planning II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* DES 122, 155.

*Recommended: CAD 158, 222.*

Continuation of DES 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.

*Offered: Spring*

**DES 256 Human and Environmental Design /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* DES 122, 155.

*Recommended: CAD 158.*

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.

*Offered: Spring*

**DES 280 Interior Design Portfolio Development /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* DES 230, 255, 256.

Identification of portfolio content. Includes project parameters, procedures and methods, portfolio content, and critique.

*Offered: Spring*

## INTERNATIONAL BUSINESS STUDIES

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **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: Fall*

### **IBS 121 Elementary Spanish for Business I /4 cr. hrs./4 periods (4 lec.)**

Introduction to Spanish with a primary focus on language used in a variety of business situations. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

*Information:* Same as SPA 121.

*Offered: Fall*

### **IBS 122 Elementary Spanish for Business II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite:* IBS 121

Continuation of IBS 121. Includes increasingly complex oral and written forms, grammatical structures, and language used in a variety of business situations. Also includes interpersonal business transactions and geographical and cultural awareness.

*Information:* Same as SPA 122.

*Offered: Spring*

### **IBS 135 The International Career /1 cr. hr./1 period (1 lec.)**

International complexities for the work force within American businesses. Includes the international environment and the global labor market, global changes and understanding the requirements of the international work force, and strategies for obtaining an international job.

*Offered: Fall*

### **IBS 140 Basic Techniques of International Trade /3 cr. hrs./3 periods (3 lec.)**

Principles and overview of international trade. Includes the international business plan, basic terms, political and legal factors of export trade, U.S. and foreign government regulations, preparation of export documentation and freight forwarding procedures. Also includes export banking, foreign trade zones in international trade, export trading companies, communicating with foreign firms, and exporting to specific geographic areas.

*Offered: Spring*

### **IBS 162 Controversial Global Issues /1 cr. hr./1 period (1 lec.)**

This course explores the changing nature of the international arena and looks at controversially world issues as they relate to the international business context. Includes population growth, quality of life and consumption, the market economy, and global resources and the environment. Also includes technology, information and innovation, the globalization of culture, and doing business in the third world.

*Offered: Spring*

### **IBS 170 Doing Business with Mexico /1 cr. hr./1 period (1 lec.)**

Explores the complexities in the relationship between the United States and Mexico. Offers a general perspective on Mexico's historical background, economic development, and business culture. Includes current conditions, categories of business, trade, maquiladoras, the bureaucracy, general cultural characteristics, and communication.

*Offered: Fall*

### **IBS 280 International Field Projects /2-6 cr. hrs./4-16 periods (1 lec., 3-15 lab)**

*Prerequisite(s):* Consent of instructor.

Field excursions, lectures, interviews and communication within international settings. Includes close interaction with public and private sector representatives, cultural visits, and foreign language exposure. Also includes emphasis on development of economic, cultural and human relationships with foreign communities.

*Offered: Fall*

### **IBS 290 International Business Experience /1-5 cr. hrs./3-7 periods (1-4 lec., 2-3 lab)**

Supervised international business experience for students from another country. Instructor-coordinators work with students and their supervisors.

*Information:* Variable credit is available by special arrangement.

*Will not be offered this year.*

## INTERPRETER TRAINING

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### **ITP 105 Fingerspelling and Numbers /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* SLG 102, REA 075.

Enhancement of receptive and expressive sign language skills with the manual alphabet and numbers. Includes methodology, theory, and application. Also includes states, basic address information, basic mathematical functions, and lexicalized fingerspelling.

*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.)**

*Prerequisite(s):* SLG 202, WRT 102.

Exploration of the history of American Sign Language (ASL), the Deaf community, and the experiences of deaf individuals. Includes norms, values, traditions, and rules of social behaviors. Also includes cross-cultural interactions between hearing and deaf people, and perspectives on deafness.

*Offered: Fall/Spring*

### **ITP 203 Linguistics of American Sign Language /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SLG 202, WRT 102.

Introduction to the linguistic structure of American Sign Language (ASL). Includes a comparison of semantics, morphology, phonology, syntax, as well as other components of ASL to English in light of current research. Also includes integration of linguistic information introduced in earlier ASL courses into an applied linguistic framework.

*Information:* Student is required to write a linguistic research paper.

*Offered: Fall/Spring*

### **ITP 205 Advanced Fingerspelling and Numbers /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* ITP 105, SLG 201.

Advanced receptive and expressive fingerspelling and number skills. Includes lexicalized fingerspelling, advanced mathematical functions, major cities, proper nouns, and related acronyms.

*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.)**

*Prerequisite(s):* SLG 202, WRT 102, or consent of instructor.

Introduction to the field and role of a sign language interpreter. Includes in-depth examination of the interpreting process, interpreter's philosophical base and behavior, interpreter's Code of Ethics, and professional options. Also includes basic consecutive interpreting.

*Offered: Fall/Spring*

### **ITP 215 Classifiers, Mimetic Description and ASL Literature /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* SLG 202, WRT 102.

Development of expressive and receptive skills through the use of classifiers, mime and analysis of American Sign Language (ASL) literature, poetry and film. Includes direct address, physical representations, spatial representations, perspective, and traditional deaf folklore.

*Information:* This course is taught in ASL.

*Information:* Additional lab hours may be required outside of the regularly scheduled class.

*Offered: Fall/Spring*

### **ITP 220 Interpreting I /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* ITP 210, WRT 102.

Practical experience in consecutive and simultaneous interpreting in increasingly complex and diverse materials. Includes text analysis and review, development of interpreting skills such as cloze, short-term memory, chunking, shadowing, and dual task training. Also includes feedback on sign selection, expressiveness, clarity, fluency and speed.

*Offered: Fall/Spring*

### **ITP 250 Interpreting II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* ITP 220.

Continuation of ITP 220. Continued development of expressive and receptive interpreting skills in educational and community situations. Introduction to and development of transliterating skills. Includes an emphasis on educational and community situations.

*Information:* Additional lab hours may be required outside of class.

*Offered: Fall/Spring*



**ITP 268 Etymology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SLG 202, REA 075

Designed to improve and increase English vocabulary and conceptual ASL correlates for the sign language interpreter. Includes use of structural analysis and contextual clues. Also includes English idioms, multiple meaning words, and multiple meaning ASL signs.

*Offered:* Fall/Spring

**ITP 270 Sign to Voice /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* SLG 202, ITP 210.

Interpreting basic sign language structures into the spoken word. Includes receptive processing tools, voicing considerations, and vocabulary enhancement.

*Information:* Additional lab hours outside of class are required.

*Offered:* Fall/Spring

**ITP 280 Advanced Sign to Voice /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* ITP 270.

Interpreting complex sign language structures into the spoken word. Includes ASL/English comparisons, vocabulary enhancement, and improvement of technical performance skills.

*Information:* Additional lab hours are required outside of regularly scheduled class.

*Offered:* Fall/Spring

**ITP 285 Educational Interpreting/Transliterating /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* ITP 250 or ITP 280.

Interpreting in educational settings. Includes skill-building, team building, transliterating, and issues specific to educational interpreting. Also includes interpreting in various content areas and certification issues.

*Information:* Additional lab hours may be required outside of regularly scheduled class.

*Offered:* Fall/Spring

**ITP 289 Special Topics in Interpreting /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* ITP 250, ITP 280

Continued development of interpreting and transliterating skills. Receptive and expressive skill refinement in consecutive and simultaneous interpreting situations. Includes an introduction and overview of specialized interpreting settings with an emphasis on terminology, roles, and special considerations.

*Offered:* Fall/Spring

**ITP 290 Interpreter Training Field Experience /2 cr. hrs./6 periods (1 lec., 5 lab)**

*Prerequisite(s):* ITP 250 or consent of instructor.

Supervised interpreting opportunities in community settings. Includes practicum experience, observations, and classroom discussions focusing on job preparation and current issues.

*Offered:* Fall/Spring

## ITALIAN

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**ITA 050 Social and Cultural Italian: Food Traditions and Dining / 2 cr. hrs./2 periods (2 lec.)**

Introduction to the Italian language presented in the context of food traditions and dining. Includes food in the culture of Italy, language of groceries and ingredients, and conversation for dining.

*Offered:* Spring

**ITA 051 Social and Cultural Italian: Travel /2 cr. hrs./2 periods (2 lec.)**

Introduction to the Italian language presented in the context of travel, from planning a trip to returning home. Includes geography and traveling in Italy, words and phrases related to transportation, conversation for hotel, restaurants, and tourist services, and language of health and hygiene.

*Will not be offered this year*

**ITA 052 Social and Cultural Italian: Cinema /2 cr. hrs./2 periods (2 lec.)**

Viewing and discussing Italian films from the postwar period to the present. Includes cinema in postwar Italy, major directors in the period of "Neorealism", major actors of the period, and ironic and comic cinema. Also includes the cultural values expressed through film.

*Information:* No prior knowledge of Italian is required, since sub-titles are provided.

*Offered:* Spring

**ITA 055 Language Study and Travel in Spain, Italy, and France / 2 cr. hrs./2 periods (2 lec.)**

Introduction to French, Italian, and Spanish language presented in the context of travel through these three countries. Includes travel in Spain, Italy, and France, lodging, money, and transportation terminology, culinary traditions, restaurants and markets, and travel destinations.

*Information:* Prior language knowledge is not required.

*Information:* Same as FRE 055 and SPA 055.

*Will not be offered this year*

**ITA 101 Elementary Italian I /4 cr. hrs./4 periods (4 lec.)**

Introduction to the Italian language. Includes foundations of Italian language, basic Italian grammar, structures and tenses, basic compositions in Italian, formulating answers in Italian, and Italian culture.

*Offered:* Fall/Spring

**ITA 102 Elementary Italian II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* ITA 101.

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.

*Offered:* Fall/Spring

**ITA 201 Intermediate Italian I /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* ITA 102.

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.

*Offered:* Fall

**ITA 202 Intermediate Italian II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* ITA 201.

Continuation of ITA 201. Includes additional intermediate grammar and sentence structures, communication and cultural topics, responses to complex written form, listening practice, Italian performance, and additional examination of Italian culture.

*Offered:* Spring

## JAPANESE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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 expressions in daily life and Japanese culture and communication.

*Offered:* Summer

**JPN 101 Elementary Japanese I /5 cr. hrs./5 periods (5 lec.)**

Introduction to the Japanese language. Includes an overview of the Japanese language, speaking and listening, grammar, personal transactions, and the cultural context within which Japanese conversation takes place. Also includes writing and reading of Hiragana, Katakana, and 75 new Kanji characters.

*Offered:* Fall/Spring

**JPN 102 Elementary Japanese II /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* JPN 101.

Continuation of JPN 101. Includes oral and written forms, grammatical structures, and interpersonal transactions. Also includes the cultural component of communication competency.

*Offered:* Fall/Spring

**JPN 108 Japanese Anime /3 cr. hrs./3 periods (3 lec.)**

Historical and modern anime will be examined as an indice of cultural/economic changes in Japanese/Western contact. In addition, Japanese culture reflected in popular art form will be analyzed with an emphasis on delineating ways in which this analysis can be used to facilitate communication between Japan and the West.

*Information:* This course is taught in English.

*Offered:* Fall

**JPN 109 Japanese Anime and Fantastic Literature /3 cr. hrs./ 3 periods (3 lec.)**

Historical and modern Japanese fantastic literature will be examined as an indice of cultural and economic changes brought about by Japanese and Western contact. Includes Japanese anime and the analysis of specific areas of Japanese culture to facilitate understanding between Japan and the West.

*Information:* This course is taught in English.

*Offered:* Spring



**JPN 201 Intermediate Japanese I /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* JPN 102.

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.

*Offered:* Fall

**JPN 202 Intermediate Japanese II /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* JPN 201.

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 3645 Kanji characters.

*Offered:* Spring

**JPN 245 Japanese Culture and Communication/3 cr. hrs./3 periods (3 lec.)**

Theories on the impact of culture on communication with the Japanese applied to Japanese communication styles and the Japanese language. Includes Japanese communication dimensions, and barriers to successful intercultural communication between the Japanese and others. Also includes an overview of the Japanese language, cultural factors affecting communication between the Japanese and others, and improving communication with the Japanese.

*Information:* This course is taught in English.

*Will not be offered this year*

## JOURNALISM

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**JRN 101 Introduction to Reporting and Media Writing /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* WRT 100 or satisfactory score on the writing assessment test.

Introduction to news reporting. Includes evaluation of news, news gathering methods, writing leads, organization of stories, interviewing and writing various types of news stories. Also includes a considerable amount of writing using computers.

*Offered:* Fall/Spring

**JRN 102 Survey of Media Communications /3 cr. hrs./3 periods (3 lec.)**

Survey of theory, nature, function, and impact of today's mass media. Includes a review and evaluation of important journalists' work and of various media and auxiliary industries, such as book and magazine publishing, newspapers, radio, television, film recordings, advertising and public relations. Also includes an overview of related career options.

*Offered:* Fall/Spring

**JRN 110 Introduction to Public Relations /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* JRN 101.

Introduction to public relations. Includes principles, practices, theory, ethics and law, and techniques for defining and dealing with internal and external public. Also includes writing, message dissemination, development of media networks, and media relations, organizing special events and news conferences, research for planning and evaluation, and group projects to develop and evaluate a public relations plan.

*Offered:* Fall/Spring

**JRN 180 Newspaper Business Procedures /2 cr. hrs./3 periods (1 lec., 2 lab)**

Introduction to principles and business procedures of newspapers in general and of the weekly student newspaper. Includes marketing, advertising sales, circulation, record keeping and simple accounting for print and online editions. Also includes extensive use of computers, scanners and software to invoice ads, post payments and deposits, write commission reports, and design advertisements.

*Offered:* Fall/Spring

**JRN 185 Newspaper Publishing /3 cr. hrs./9 periods (9 lab)**

*Prerequisite(s):* JRN 101.

*Recommended:* JRN 102.

Publication of the college's weekly student newspaper and online edition of the newspaper. Includes news judgment, news gathering, news and editorial writing, editing and headline writing, photography, page design and computer pagination, advertising, and other publication activities. Also includes newsroom management and ethical and legal considerations.

*Information:* Requires extensive use of computers, scanners and publishing software. Emphasis may be selective according to student goals and skills.

*Information:* May be taken three times for a maximum of nine credits hours.

*Offered:* Fall/Spring

**JRN 186 Writing for the Web /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 100 or satisfactory score on the writing assessment test.

*Recommended:* JRN 101, 102 or concurrent enrollment, and proficiency in computer applications.

Introduction to basic concepts and techniques for writing on the World Wide Web. Includes introduction to web technology, basic journalistic techniques useful for web writing, Hypertext Markup Language (HTML) or web editing software, linear forms, nonlinear forms, clicking and scrolling affect on writing, process for writing and writing online, tips for writing online, citations, communication law in the electronic age, and journalism ethics in the new media.

*Offered:* Fall/Spring

**JRN 187 Introduction to Electronic Publishing in Journalism/Media /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* JRN 101 and computer literacy.

*Recommended:* Basic word processing skills and computer literacy.

Introduction to electronic (on-line) publishing with applications to new media. Includes work with computers, desktop publishing, imaging and Internet software, HTML formatting, and designing Web pages/sites to create camera-ready publications and maintain a Web site. Also includes methods to navigate and do research on the Internet and the World Wide Web, concepts, principles and ethics of publishing on the Internet, responsibilities of an electronic journalist, disinformation and privacy issues.

*Offered:* Fall/Spring

**JRN 188 Desktop Publishing for Journalism /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Recommended:* Word processing or keyboard skills.

Desktop publishing for media communications. Includes basic principles of page layout using text and graphics applied to journalistic and electronic media. Also includes designing and editing tabloid newspapers, brochures, newsletters, scoreboards, slide presentations, and transparencies.

*Offered:* Fall/Spring

**JRN 189 Newspaper Graphics /2 cr. hrs./3 periods (1 lec., 2 lab)**

Application of principles and techniques of newspaper layout, design elements, typography, line art, illustrations, editorial graphics and photographs in journalism and to the weekly student newspaper. Includes extensive use of computers, scanners and desktop publishing software and applications to online editions.

*Offered:* Fall/Spring

**JRN 196 Journalism Independent Projects: Journalism/Media Publishing /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Six credit hours of JRN classes and consent of instructor.

Students independently continue their development in journalism with the help of a faculty member.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered:* Fall/Spring

**JRN 199 Co-op Related Class in JRN /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* JRN 186, 187, 188.

*Corequisite(s):* Concurrent enrollment in JRN 199WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring

**JRN 199WK Co-op Work in JRN /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s):* JRN 186, 187, 188.

*Corequisite(s):* Concurrent enrollment in JRN 199 Co-op Related Class.

A supervised cooperative work program for students in a related occupational area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring

**JRN 230 Advanced Reporting /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* JRN 101 or consent of instructor, JRN 102 or concurrent enrollment.

Advanced news gathering and news writing for reporting complex stories. Includes development of varied leads, review and practice in most types of basic news assignments, and focus on in-depth stories expanding what constitutes news. Also includes alternate methods of news gathering, such as computer-assisted and Internet research, observation and interviewing techniques, and document searches.

*Offered:* Fall/Spring

**JRN 235 Writing/Reporting for Broadcast Journalism /3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s):* JRN 101.

*Recommended:* JRN 102 or concurrent enrollment.

Introduction to broadcast news writing and reporting for television and radio. Includes introduction to broadcast news, formats and readability, shifting from print to broadcast writing, broadcast copy, news gathering and reporting, reporting assignments and coverage, writing for radio newscast, writing for television newscast, television short packages, live shots and long packages, and ethics and the law.

*Offered:* Fall/Spring

**JRN 240 Editing, Layout, and Design /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* JRN 101.

Principles and techniques of publication editing, layout, and design. Includes newsroom and other settings, copy and electronic editing, proof-reading, headline writing, electronic page layout, typography and design, copyflow, and problems and responsibilities of editors. Also involves the extensive use of computers in the editing process.

*Offered:* Fall/Spring

**JRN 260 Magazine and Feature Writing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* JRN 101.

Writing magazine and newspaper feature articles for publication. Includes the requirement to research, write and attempt to market an article or series of features.

*Offered:* Fall/Spring

**JRN 270 Media Advertising and Public Relations /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* JRN 101.

Principles and techniques of media advertising and public relations. Includes planning, sales and production. Also includes working in groups to produce a national and local advertising campaign and a public relations campaign.

*Offered:* Fall/Spring

**JRN 280 Photojournalism /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* JRN 101 or consent of instructor, JRN 102 or concurrent enrollment.

Practical applications of photographic skills to communicate nonfiction stories and document life. Includes basic camera operations and use of lenses, film stocks, filters, flash, and scanners, computers and digital imaging software. Also includes ethical and legal considerations, analysis of photographs, cropping and sizing, layout of photo essays, and writing outlines and captions.

*Offered:* Fall/Spring

**JRN 281 Applied Photojournalism /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Recommended:* JRN 280 or equivalent experience.

Application of photojournalistic concepts and techniques to complete assignments for the weekly student newspaper. Includes creating visual images for spot and general news, features, portraits, sports, sports and photo essays, writing outlines and captions, and designing the layout of photo stories. Also includes use of film scanners, computers and digital imaging software to size, crop and adjust images.

*Information:* Access to a 35MM still film camera is required. Digital, still, and video cameras will be available.

*Offered:* Fall/Spring

**JRN 285 Advanced Newspaper Publishing /3 cr. hrs./9 periods (9 lab)**

*Prerequisite(s):* JRN 185 and consent of instructor.

Advanced work on the college's weekly student newspaper and online editor of the newspaper. Includes advanced reporting, copy editing, page design, computer pagination, photo editing, newsroom management, and legal and ethical considerations.

*Information:* May be taken three times for a maximum of nine credit hours.

*Offered:* Fall/Spring

**JRN 287 Advanced Electronic Publishing in Journalism/Media / 3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* JRN 187.

Continuation of JRN 187. Includes self evaluation of online knowledge and skills, advanced publishing technologies, advanced software for print/web, additional theory of electronic publishing, additional tours of local multimedia publishing operations, and capstone application: publication project in print, broadcast, and on the Internet.

*Offered:* Fall/Spring

**JRN 296 Journalism Independent Projects: Advanced Journalism/ Media Publishing /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* JRN 196 and consent of instructor.

Students independently continue their development in journalism with the

help of a faculty member.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered:* Fall/Spring

**JRN 299 Co-op Related Class in JRN /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* JRN 199.

*Corequisite(s):* Concurrent enrollment in JRN 299WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered:* Fall/Spring

**JRN 299WK Co-op Work in JRN /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s):* JRN 199.

*Corequisite(s):* Concurrent enrollment in JRN 299 Co-op Related Class.

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered:* Fall/Spring

**LANDSCAPE TECHNICIAN**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**LTP 100 Landscape Today and Tomorrow /3 cr. hrs./3 periods (3 lec.)**

Overview of the landscape contracting industry: its history, current status and projection for the future. Also includes special attention to career opportunities within various specialties.

*Will not be offered this year*

**LTP 120 Plant Pathology, Pests and Controls /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* BIO 184.

In-depth study of the pests, insects and diseases which damage shrubs, flowers, ornamental trees, turf grass and interior foliage. Emphasis on identification, control and treatment of the above problems as well as on the theory of utilizing chemicals, pesticides, herbicides and biological control.

*Will not be offered this year*

**LTP 130 Soils Management /4 cr. hrs./6 periods (3 lec., 3 lab)**

Analysis of soil types and fertility requirements of plants. Includes derivation, classification and evaluation of soils and the chemical, biological and physical requirements for plant growth.

*Will not be offered this year*

**LTP 160 Plant Usage and Identification I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Principles and techniques of plant usage and identification. Includes how to use plants, plant identification, and a short history of plant taxonomy. Also includes the one hundred and fifty most common landscape plants and interior plants used in the southwest.

*Offered:* Fall

**LTP 196 Independent Studies in Landscape Design /1-4 cr. hrs./ 3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

Independent studies and projects in landscape design and technology. Content to be determined by conference between student and instructor.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered:* Will not be offered this year

**LTP 199 Co-op Related Class in LTP /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in LTP 199WK Co-op Work.

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**LTP 199WK Co-op Work in LTP /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s):* Concurrent enrollment in LTP 199 Co-op Related Class.

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 two times for a maximum of sixteen credit hours.

*Will not be offered this year*

**LTP 200 Landscape Management Systems /3 cr. hrs./3 periods (3 lec.)**  
Principles of planning and implementing landscape projects. Includes management information systems, foreman duties, customer relations and contract laws. Also includes at least one site visit, and prepares the student to manage all phases of a landscape project.

*Will not be offered this year*

**LTP 205 Irrigation Design I /3 cr. hrs./3 periods (3 lec.)**

Design of turf, ornamental and drip (emitter) irrigation systems. Includes establishment of design criteria, selection and application of system components, preparation of irrigation plans and specifications and basic estimating procedures.

Information: Intended for students and professionals interested in irrigation systems.

*Will not be offered this year*

**LTP 206 Irrigation Design II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): LTP 205.

Design of large-scale irrigation systems, such as apartment complexes, parks and roadway projects, using both conventional sprinkler and drip systems. Includes establishing design criteria, selection and application of system components, water conservation measures, preparation of irrigation plans and specifications.

Information: Includes field trips to review existing systems and systems under construction.

*Will not be offered this year*

**LTP 210 Irrigation Installation /3 cr. hrs./5 periods (2 lec., 3 lab)**

Introduction to irrigation systems for technicians in the landscape and irrigation industries. Includes turf, ornamental, and drip (emitter) systems. Also includes materials, equipment, installation techniques, blueprint reading, and basic maintenance and repair procedures.

*Offered: Spring*

**LTP 215 Interior Plantscape Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Design and maintenance of the total interior horticultural environment. Includes principles of design, design procedures, and horticultural and business practices. Also includes working with interior landscapers, interior designers, architects and clients, with an emphasis on the creative aspects of the process.

*Will not be offered this year*

**LTP 230 Landscape Maintenance /3 cr. hrs./3 periods (3 lec.)**

Examination of management and technical skills required to operate and maintain southwestern landscapes. Includes water management, pests and disease controls.

*Will not be offered this year*

**LTP 260 Basic Landscape Design /3 cr. hrs./3 periods (3 lec.)**

Designing residential and light commercial landscape sites. Includes drafting tools and techniques, site planning, preparation of working drawings and specifications, and construction cost estimating.

*Offered: Fall/Spring*

**LTP 270 Plant Usage and Identification II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): LTP 160 and 260 or concurrent enrollment in LTP 260.

Continuation of LTP 160. Includes advanced studies in the principles and techniques of plant usage and identification. Also includes familiarization with where and how to use plants, plant identification, plant taxonomy and emphasis on two hundred additional plants used in landscapes and interior applications in the southwest.

*Will not be offered this year*

**LTP 290 Landscape Field Experience /1-4 cr. hrs./5-20 periods (5-20 lab)**

Prerequisite(s): Consent of instructor.

Supervised landscape experience with a private company, government agency, or non-profit organization. Includes work-site experiences such as the bid process, customer relations, employer/employee relations, wholesale purchasing, and installation and maintenance techniques.

Information: Students should be able to do physical labor under difficult conditions.

Information: May be taken two times for a maximum of eight credit hours.

*Will not be offered this year*

## LATIN

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**LAT 101 Elementary Latin I /4 cr. hrs./4 periods (4 lec.)**

Introduction to the Latin language through reading and composition. Includes present tense, nominative and accusative cases, and 1st and

2nd declension, ablative and vocative cases, present infinitives, 3rd declensions, commands and questions, genitive and dative cases, adverbs, and relative pronoun, demonstrative, personal and reflexive pronouns, and imperfect and perfect tenses, pluperfect tense and 4th and 5th declensions, and topics in ancient Roman history and culture.

*Offered: Fall*

**LAT 102 Elementary Latin II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): LAT 101.

Continuation of LAT 101. Includes comparison of adjectives and irregular superlatives, present participle, future and future perfect tenses, and relative clauses, passive voice and perfect passive participle, subjunctive mood, clauses of purpose, and indirect commands, deponent verbs, ablative absolute, and future participle, and topics in ancient Roman history and culture.

*Offered: Spring*

**LAT 201 Intermediate Latin I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): LAT 102.

Continuation of LAT 102. Includes indirect questions and indirect statements, consecutive clauses, conditional clauses, and main clauses with the subjunctive cum and dum clauses, clauses of fearing, impersonal verbs and gerunds, gerundive and relative clauses with the subjunctive, and topics in ancient Roman history and culture.

*Will not be offered this year*

**LAT 202 Intermediate Latin II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): LAT 201.

Continuation of LAT 201. Includes selected speeches and letters of Cicero, selected passages from Caesar's Commentaries on the Gallic War, selected poems by Catullus, selected passages from Virgil's Aeneid, selected passages from Livy's History of Rome, and selected passages from the works of Ovid.

*Will not be offered this year*

## LIBRARY SKILLS

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**LIB 070 Introduction to Libraries and Information Resources / 1 cr. hr./1 period (1 lec.)**

Basic library skills. Includes types and purposes of libraries, areas of the library, call number systems, questioning skills, types and parts of print and online books, standard print resources, library catalog, periodicals and periodical indexes, Internet use for research, evaluation of information and plagiarism.

*Will not be offered this year*

**LIB 101 Research Process /1 cr. hrs./1 periods (1 lec.)**

Recommended: LIB 070 or equivalent skills and knowledge.

Introduction to research strategies. Includes orientation to the Pima Community College library system, research topics, locating information, standard evaluation of information techniques, and bibliographic citation standard formats.

Information: Basic knowledge of libraries and basic Web navigation skills recommended.

*Offered: Spring*

**LIB 161 Using Search Engines for Research/1 cr. hrs./1 periods (1 lec.)**

Recommendation: Basic Computer skills such as the ability to use a keyboard and a mouse.

Techniques for Web-based research. Includes history of the World Wide Web (WWW), principles and concepts of web-based research, constructing a search strategy, common search techniques, search engines, meta-engines, directories, web-based databases ("invisible web"), and evaluating and citing web-based information.

*Will not be offered this year*

## LITERATURE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**LIT 174 Introduction to Native American Writings /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): OAP 251 or JRN 101, or WRT 101 or 107, or WRT 154.

Study of Native American texts, including autobiographical writings, short stories, and nonfiction. Includes introduction to historical and cultural contexts, themes and issues addressed by Native American authors, Native American narratives, and reports and presentations.

*Offered: Fall/Spring*



**LIT 231 Introduction to Shakespeare /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

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.

*Offered: Fall/Spring/Summer***LIT 237 Women's Literature /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

Study of literature written by women. Includes literary forms, historical, multicultural, and global contexts, literary criticism, and intertextualities.

*Will not be offered this year***LIT 240 American Literature of Opposition /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

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.

*Offered: Spring***LIT 260 Major British Writers /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

Representative selection of works by major authors. Includes a range of periods and types of literature.

*Will not be offered this year***LIT 261 Modern Literature /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

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.

*Offered: Fall/Spring/Summer***LIT 262 American Poets /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 101.*

Study of the voices and visions of American poets. Includes American poetic visions, distinct styles and voices of poets, and writing assignments.

*Will not be offered this year***LIT 265 Major American Authors /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102 or 108.*

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.

*Offered: Fall/Spring***LIT 266 World Drama /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

Major dramatic works. Includes literary forms, historical context, psychological and moral implications of the literature, and cultural significance of plays.

*Will not be offered this year***LIT 267 World Literature: Narrative /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

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.

*Offered: Fall/Spring***LIT 274 Native American Literature /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 101 or 107.*

A survey of Native American oral stories, autobiographical writings, fiction, poetry, and nonfiction. Includes historical and cultural contexts, major themes and issues in contemporary Native American literature, literary forms and techniques, and critical essays.

*Offered: Fall/Spring/Summer***LIT 289 Literature and Film /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): WRT 102.*

Criticism of films' 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.

*Offered: Fall/Spring/Summer***MACHINE TOOL TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**MAC 110 Manual Machine Shop /4 cr. hrs./7 periods (1 lec., 6 lab)**

Introduction to basic machine shop practices. Includes safety, manufacturing process planning, measurement, layout tools and procedures, principles of metal cutting, power saws, abrasive machines, drilling, lathes, vertical milling machines and grinding machines.

*Offered: Fall/Spring/Summer***MAC 125 Mechanical Inspection /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s): GTM 105, MAC 110 or industry experience.*

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.

*Offered: Fall/Spring***MAC 130 Jig and Fixture Design /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): MAC 110 or industry experience.*

Design and application of tools, jigs, and fixtures for basic metal working. Includes basic types of jigs and fixtures, design economics, designing and constructing jigs and fixtures, and specialized workholding tooling.

*Offered: Fall/Spring***MAC 140 Introduction to Electrical Discharge Machining /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s): MAC 110 or industry experience.*

Applications 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.

*Offered: Fall***MAC 150 Computer Numerical Control (CNC) Mill Programming I /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s): GTM 105, MAC 110 or industry experience.**Recommendation: CAD 101*

Operations and procedures for automated machining systems. Includes Numerical Control (NC) and Computer Numerical Control (CNC) machining systems, positioning and coordinate systems used in NC/CNC programming, part programming, diagnosis and correction of programming errors, and programming procedures.

*Offered: Fall/Spring***MAC 155 Computer Numerical Control (CNC) Mill Programming II /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s): MAC 150.*

Continuation of MAC150. Includes review of Computer Numerical Control (CNC), mill programming, diagnosis and correction of programming errors, advanced programming techniques used in production and prototype machining, introduction to lathe programming, and introduction to sub-programming.

*Offered: Fall/Spring***MAC 160 Computer Numerical Control (CNC) Lathe Programming /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s): GTM 105, MAC 150 or industry experience.*

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.

*Offered: Summer***MAC 199 Co-op Related Class in MAC /1 cr. hr./1 period (1 lec.)***Corequisite(s): Concurrent enrollment in MAC 199WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.*Will not be offered this year***MAC 199WK Co-op Work in MAC /1-8 cr. hrs./5-40 periods (5-40 lab)***Corequisite(s): Concurrent enrollment in MAC 199 Co-op Related Class.*

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 two times for a maximum of sixteen credit hours.*Will not be offered this year*



**MAC 245 Wire Electrical Discharge Machining and Programming I / 4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAC 140.

Operations and procedures for EDM machining systems. Includes wire EDM overview, EDM operating processes, EDM machine functions, EDM manual part programming, and EDM machining operations.

*Offered:* Spring**MAC 257 Computer Aided Machining (CAM) I / 4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAC 155 or industry experience.

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.

*Offered:* Fall/Spring**MAC 258 Computer Aided Machining (CAM) II / 4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAC 257.

Continuation of MAC 257. Includes profile surfaces, three-dimensional surfaces, and editing surfaces.

*Offered:* Spring**MAC 259 Computer Aided Machining (CAM) III: Solid Modeling / 4 cr. hrs./7 periods (1 lec., 6 lab)***Prerequisite(s):* MAC 258.

Continuation of MAC 258. Includes profile surfaces of tool path, solid model features in three-dimension (3-D), and editing solid model surfaces.

*Offered:* Summer**MAC 262 Wire Electrical Discharge Machining (EDM) with CAM / 4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* MAC 245 and 257 or industry experience.*Recommended:* MAC 258.

Wire Electrical Discharge Machine (EDM) programming with MasterCam. Includes review of CNC and wire EDM fundamentals, introduction to the Computer Aided Machining (CAM) environment, MasterCam geometry, wire path creation, and automated machine operation.

*Offered:* Spring**MAC 275 Applied Metallurgy / 4 cr. hrs./8 periods (2 lec., 6 lab)**

Application of metallurgical concepts, procedures, and testing. Includes materials, alloy classification systems, industrial and manufacturing concepts, properties and testing, and industrial and manufacturing processes and applications.

*Offered:* Fall**MAC 296 Machine Tool Independent Projects / 1-4 cr. hrs./3-12 periods (3-12 lab)***Prerequisite(s):* Consent of instructor.

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.*Offered:* Fall/Spring**MAC 297 Machine Tool Seminar / .25-4 cr. hrs./25-16 periods (.25-4 lec., .25-12 lab)***Prerequisite(s):* Consent of instructor.

Machine tool job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Will not be offered this year***MAGNETIC RESONANCE IMAGING**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**MRI 210 Introduction to Magnetic Resonance Imaging / 1 cr. hr./1 period (1 lec.)***Corequisite(s):* MRI 212, 214, 216

Overview of magnetic resonance imaging, program policies and student responsibilities. Includes fundamental principles of MRI, equipment and terminology, the role of the technologist in maintaining patient safety and comfort, and personal safety of coworkers. Also includes MRI contrast agents and venipuncture, and a brief introduction to imaging parameters and the clinical applications of MRI.

*Offered:* Fall**MRI 212 Physical Principles of Magnetic Resonance Imaging / 1 cr. hr./1 period (1 lec.)***Corequisite(s):* MRI 210, 214, 216.

Comprehensive overview of magnetic resonance imaging. Includes instrumentation, magnetism, nuclear magnetic resonance signal production, tissue characteristics, spatial localization, pulse sequencing, and imaging parameters and options. Also includes special applications, safety, and quality assurance.

*Offered:* Fall**MRI 214 Sectional Anatomy of the Human Body / 1 cr. hr./1 period (1 lec.)***Corequisite(s):* MRI 210, 212, 216.

Three dimensional anatomy presented in transverse, sagittal and coronal planes of specified regions of the human body as viewed from magnetic resonance imagery. Includes structure identification of the bones, muscles, vascular system, organs and soft tissue components.

*Offered:* Fall**MRI 216 MRI Clinical Education I / 4 cr. hr./16 periods (16 lab)***Corequisite(s):* MRI 210, 212, 214.

Application of general magnetic resonance imaging (MRI) procedures in a clinical education center under supervision of an American Registry of Radiologic Technologists (ARRT) registered MRI technologist. Includes MRI procedures, safe utilization of the MRI environment, patient care, clerical responsibilities, human relations skills with patients and staff, image processing and handling, and MR image evaluation.

*Offered:* Fall**MRI 220 Imaging Procedures / 1 cr. hr./1 period (1 lec.)***Prerequisite(s):* MRI 216.*Corequisite(s):* MRI 222, 224, 226.

Imaging techniques related to the central nervous system, neck, thorax, musculoskeletal system, and abdominopelvic regions. Includes specific clinical applications, available coils and their use, scan sequence considerations, specific protocol choices, and positioning criteria. Also includes anatomical structures, the plane best demonstrating anatomy, and signal characteristics of normal and abnormal structures.

*Offered:* Spring**MRI 222 MRI Pathology Detection / 1 cr. hr./1 period (1 lec.)***Prerequisite(s):* MRI 216.*Corequisite(s):* MRI 220, 224, 226.

Common pathologies identified by magnetic resonance imaging and their appearance with various imaging protocols. Includes all commonly imaged body systems and areas. Also includes case studies and images of pathologies.

*Offered:* Spring**MRI 224 ARRT Exam Preparation and MRI Physics Review / 1 cr. hr./1 period (1 lec.)***Prerequisite(s):* MRI 216.*Corequisite(s):* MRI 220, 222, 226.

Review of knowledge and skills needed to perform the tasks typically required of technologists practicing in the clinical field of magnetic resonance imaging. Includes special emphasis on elements required to pass the American Registry of Radiologic Technologists examination, including patient care and safety, imaging procedures, data acquisition, and physical principles of image formation.

*Offered:* Spring**MRI 226 MRI Clinical Education II / 4 cr. hr./16 periods (16 lab)***Prerequisite(s):* MRI 216.*Corequisite(s):* MRI 220.

Continuation of MRI 216. Application of general magnetic resonance imaging procedures in a clinical education center under the supervision of an American Registry of Radiologic Technologist (ARRT) registered MRI technologist. Includes further development of MRI procedures, safe utilization of the MRI environment, patient care, clerical responsibilities, human relations skills with patients and staff, image processing and handling, and MR image evaluation.

*Offered:* Spring**MAINTENANCE TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**MNT 101 Custodial Procedures / 4 cr. hrs./6 periods (3 lec., 3 lab)**

Cleaning techniques and procedures. Includes chemicals and chemical usage, cleaning equipment, floor machines, floor pads and brushes, wet and dry mopping, spray buffing and floor polishing, scrubbing, stripping, protective floor coverings, safety, floor care, special use floors, metal cleaning and polishing, restroom sanitation and stain removal.

*Offered:* Fall/Spring

**MNT 104 Lubrication of Industrial Equipment /3 cr. hrs./4 periods (2 lec., 2 lab)**

Properties and applications of industrial lubrications. Includes handling and confinement of hazardous materials, principles and characteristics of lubrication, additives and their properties, oils, general and special-purpose greases, coolants, and draining, cleaning, and refilling (DRC) procedures.  
*Offered: Fall*

**MNT 106 Heavy Equipment Operations /2 cr. hrs./4 periods (1 lec., 3 lab)**

Principles and procedures associated with heavy equipment operation. Includes introduction to various types of heavy equipment, heavy equipment operations, types of fuels, and safety.  
*Offered: Fall*

**MNT 107 Southwest Industrial Landscape Maintenance /2 cr. hrs./3 periods (1 lec., 2 lab)**

Principles and techniques of operating and maintaining a Southwest desert landscape system in an industrial setting. Includes tools and equipment, pruning principles and techniques, disease and insect control, fertilizer selection and use, and herbicide selection and use. Also includes turf management, maintenance and troubleshooting irrigation systems, and seasonal maintenance planning.  
*Offered: Spring*

**MNT 108 Water Treatment for HVAC Systems /1.5 cr. hr./2 periods (1 lec., 1 lab)**

*Prerequisite(s): MAT 082.*  
Water treatment for industrial heating, ventilation and air conditioning systems. Includes water basics, chemical treatment, automatic feed system, analyzing and controlling the system, cooling water systems, and meters associated with water treatment.  
*Offered: Spring*

**MNT 110 Industrial Air Compressors /2 cr. hrs./4 periods (1 lec., 3 lab)**

*Prerequisite(s): MAT 092.*  
Principles and procedures of industrial air compressors. Includes pneumatic principles, reciprocating and rotary compressors, determining air compressor requirements, air treatment, pressure controlling and venting, system maintenance program, and troubleshooting.  
*Offered: Fall*

**MNT 112 Industrial Pumps /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): MAT 092.*  
Operation, maintenance, and installation of industrial pumping systems. Includes pumping concepts, application and selection of pumps, introduction to metering and vacuum pump systems, packing and seals, and pump maintenance, repair, and installation procedures.  
*Offered: Fall*

**MNT 116 Industrial Boilers /5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s): MAT 082.*  
Operation and maintenance of industrial heating systems. Includes safety, types of boilers and fuels, pipe specifications, fuel regulators, ignition systems, pump start up procedures, troubleshooting, blowdown, water treatment, preventative maintenance, valves, periodic inspection, and installation.  
*Offered: Spring*

**MNT 118 Industrial Air Treatment /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): BCT 103, MAT 082.*  
Theory and procedures for process air movement. Includes energy recovery processes, air flow, air treatment equipment, and evaluation of heat transfer media.  
*Will not be offered this year*

**MNT 140 Tools and Equipment for Industrial Painting /3 cr. hrs./5 periods (2 lec., 3 lab)**

Classification and application of tools and equipment for industrial painting. Includes types of tools and equipment of the trade, care and use of the equipment, and sign production.  
*Offered: Spring*

**MNT 141 Industrial Painting Applications I /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): MAT 082, MNT 140.*  
Theory and application of industrial painting. Includes color schemes, types, properties and application, composition, elements, matching colors, mixing, hazardous materials and conditions, safety associated with the painting trade, and application techniques.  
*Offered: Fall*

**MNT 142 Industrial Painting Applications II /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): MNT 141.*  
Continuation of MNT 141. Includes a review of tools and equipment, types of paint, application, composition, and mixing of paint, types of surfaces to paint and stripping.  
*Offered: Fall*

**MNT 150 Rigging and Load Lifting /3 cr. hrs./5 periods (2 lec., 3 lab)**

Principles and procedures of rigging and load lifting. Includes types of ropes and slings, chains, hoists, overhead and jib cranes, scaffolds and ladders, and transporting, leveling, anchoring, and setting up of equipment.  
*Offered: Spring*

**MNT 152 Industrial Bearings /2.5 cr. hrs./3 periods (2 lec., 1 lab)**

*Prerequisite(s): MAT 060, MNT 104.*  
Installation and troubleshooting techniques of industrial bearings. Includes journal, ball and roller, and specialized bearings, lubrication and seals, installation and removal techniques and safety.  
*Offered: Spring*

**MNT 154 Industrial Couplings, Clutches, and Brakes /2 cr. hrs./4 periods (1 lec., 3 lab)**

*Prerequisite(s): MAT 082.*  
Installation techniques for couplings, clutches, and brakes on industrial equipment. Includes types of and factors for drive coupling selection, clutch and brake requirements, types of clutches and brakes, and safety techniques.  
*Offered: Fall*

**MNT 155 Industrial Mechanical Drives /3.5 cr. hrs./4 periods (3 lec., 1 lab)**

*Prerequisite(s): MNT 152.*  
Principles and procedures associated with industrial mechanical drives. Includes type, construction, installation, and safety of chain, gear, and variable speed drives.  
*Offered: Fall*

**MNT 156 Fiberglass, Thermoplastic, and Metal Forming /3 cr. hrs./4 periods (2 lec., 2 lab)**

Principles and procedures associated with fiberglass, thermoplastic, and metal forming. Includes working with fiberglass, types of materials, tools, equipment, and supplies used with fiberglass, surfacing tools, workplace conditions, procedures for laminating polyester resins, lamination with epoxy resins, thermoplastics fabrication and welding, and bending and forming of metal stock, rod and flat stock.  
*Offered: Spring*

**MNT 160 Industrial Diesel Engine Maintenance and Repair /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): AUT 122, 124, 125, 128, 129.*  
Troubleshooting and service of industrial diesel engines. Includes system operation, carburetion, specifications and torque, troubleshooting, lubrication and maintenance, testing and adjusting, and manufacturer differences.  
*Offered: Spring*

**MNT 170 Industrial Plumbing and Piping Systems I /2.5 cr. hrs./3 periods (2 lec., 1 lab)**

*Prerequisite(s): BCT 120.*  
Principles and practices of an industrial plumbing and piping system. Includes an introduction to plumbing and piping systems, math and commercial blueprint reading, types, irrigation, installation, and servicing of valves, types of fittings, related equipment, and safety.  
*Offered: Fall*

**MNT 171 Industrial Plumbing and Piping Systems II /4 cr. hrs./ 6 periods (3 lec., 3 lab)***Prerequisite(s): MNT 170.*

Continuation of MNT 170. Includes fixtures, water heaters, faucets, traps and interceptors, joints and connections, meters, water pressure booster and supply systems, shock arrestors, and techniques for thawing frozen pipes.

*Offered: Fall***MNT 172 Industrial Plumbing and Piping Systems III /4 cr. hrs./ 6 periods (3 lec., 3 lab)***Prerequisite(s): MNT 171.*

Continuation of MNT 171. Includes features and operation of piping systems, types and sizes of vents, types, operation, and application of pumps, fire protection, methods of disinfection, and operation and repair of deionized water units.

*Offered: Spring***MNT 201 Direct Digital Controllers /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): BCT 103, 126, 128, 223.*

Electronic controller troubleshooting and maintenance. Includes hardware, computer program loading and maintenance, energy management, control theory, control loops, stand alone controllers, variable air volume box, and interfacing.

*Offered: Spring***MNT 210 Air Logic Control Systems /2 cr. hrs./4 periods (1 lec., 3 lab)***Prerequisite(s): ASP 105.*

Principles and application of an air logic control system. Includes an introduction to pneumatic control system diagrams, elements, and accessories, and pneumatic logic circuit board layout and troubleshooting.

*Offered: Spring***MNT 220 Scraping and Flaking of Metals /2 cr. hrs./4 periods (1 lec., 3 lab)***Prerequisite(s): MAC 285, MNT 152.*

Principles and techniques for the scraping and flaking of metals in an industrial environment. Includes types of materials that are scraped and flaked, rationale, tools and equipment, and scraping and flaking patterns.

*Will not be offered this year***MNT 230 Electrical Storage Batteries /2.5 cr. hrs./3 periods (2 lec., 1 lab)***Prerequisite(s): Consent of instructor.*

Principles and procedures associated with electrical storage batteries. Includes safety precautions and equipment, battery operation, terminology, cell construction, types of storage batteries, charging techniques, and effects of temperatures on lead-acid batteries.

*Offered: Fall***MNT 231 Industrial Fire Alarm Systems /6 cr. hrs./8 periods (4 lec., 4 lab)***Prerequisite(s): Consent of instructor.*

Principles and procedures associated with industrial fire alarm system. Includes initiating, signaling, remote devices, types of alarms, fan shut-down controls, area annunciator panels, battery power supplies, and field processing hardware.

*Offered: Spring***MNT 232 Master Clock Control and Public Address Systems / 3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): Consent of instructor.*

Principles and techniques associated with the installation, repair and adjustment of master clock controls and public address systems. Includes analog and digital clocks, timers, time tone unit, clock correction code converters, and signaling devices.

*Offered: Fall/Spring/Summer***MNT 234 Industrial Emergency Generators /2 cr. hrs./4 periods (1 lec., 3 lab)***Prerequisite(s): MNT 230.*

Operation and maintenance of industrial emergency generators. Includes safety, operating components, installation, operation and adjustments, troubleshooting, and automatic transfer switch.

*Offered: Fall/Spring/Summer***MNT 238 Electrical Transformers I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Theory and application of electrical transformers. Includes construction of a transformer, definition of terms, calculating efficiency of a transformer, polarity markings, paralleling transformers, voltage and frequency, structure, advantages and disadvantages of the three-phase transformer, and transformer banks.

*Offered: Fall/Spring/Summer***MNT 239 Electrical Transformers II /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MNT 238, 242.*

Continuation of MNT 238. Includes polarity markings, American National Standards Institute (ANSI) and National Electrical Manufacturers Association (NEMA) standards, parallel connections, distribution and tap changing transformers, nameplate data, delta and wye connections, and special application transformers.

*Offered: Fall/Spring/Summer***MNT 242 High Voltage Electrical Switchgear /4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s): Consent of instructor.*

Theory and application of high voltage electrical switchgear. Includes medium or high voltage switchgear, secondary and primary unit substation power centers, rectifier unit stations, panelboards, busbar spacing, motor control centers, associated equipment and procedures, and safety.

*Offered: Fall/Spring/Summer***MNT 244 Conduit Systems and Hardware /3 cr. hrs./5 periods (2 lec., 3 lab)***Prerequisite(s): MAT 086.*

Theory and application of conduit systems and hardware. Includes electrical metallic tubing, rigid, polyvinyl chloride (PVC) and flexible conduit, conduit supports, construction wiring techniques, hardware, code requirements, and grounding methods.

*Offered: Fall/Spring/Summer*

## MANAGEMENT

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**MGT 110 Human Relations in Business and Industry /3 cr. hrs./ 3 periods (3 lec.)**

Basic theories and concepts for understanding human relations needs of business employees and managers. Includes organizational behavior, diversity, motivation and performance management, job design, group work, organizational design, organizational power, and conflict and negotiation.

*Offered: Fall/Spring/Summer***MGT 122 Supervision /3 cr. hrs./3 periods (3 lec.)**

Principles of personnel supervision. Includes group dynamics, organizational work structures, source and nature of worker values, team communication skills, decision making, creativity within worker teams, controversy within worker teams, conflict of interest within worker teams, dealing with diversity, and team development and training for continuous improvement.

*Offered: Fall/Spring/Summer***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, sources of funds, international operations, contracts, risk, and international opportunities.

*Offered: Fall/Spring/Summer***MGT 130 Improving Service Quality /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MAT 092.*

Exploration of service quality in a variety of product and service arenas. Includes customer/supplier interactions, quality indicators costs of service quality, guidelines for quality service improvement, pitfalls or danger signs, service quality benchmarking process, variation, introductory tools for service quality improvement, and quality training.

*Offered: Spring***MGT 190 Internship in Management /1.2-9 cr. hrs./2-41 periods (1 lec., 1-40 lab)***Prerequisite(s): Consent of instructor.*

Supervised internship in a management workplace. Includes experiences supervised by a professional in the field.

*Will not be offered this year***MGT 190A Internship in Management: Module A /1 cr. hr./1 period (1 lec.)***Prerequisite(s): Consent of instructor.*

Survey of the management workplace. Includes up-to-date employment information, preparing for work, and job-related expectations.

*Will not be offered this year*



**MGT 190B Internship in Management: Module B /2-8 cr. hrs./1-40 periods (1-40 lab)**

*Prerequisite(s):* Consent of instructor.

Experience in the management workplace. Includes assignment in a professional office and supervision by a Pima faculty member and a workplace supervisor.

*Will not be offered this year*

**MGT 230 Dynamics of Leadership /3 cr. hrs./3 periods (3 lec.)**

Supervised practical training in leadership. Includes history, philosophy and vision of leadership, aspects of leadership, power of positive vision, goal setting, decision making, life planning, identifying a personal philosophy, team building, delegating, ethics in leadership, servant leadership, initiating change, managing conflict, and designing and completing leadership projects.

*Information:* Same as STU 230.

*Offered:* Fall

**MGT 230A Dynamics of Leadership: Philosophy and Vision / .5 cr. hr./5 period (.5 lec.)**

Introduction to leadership. Includes history of leadership, aspects of leadership, and power of positive vision.

*Information:* MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230.

*Information:* Same as STU 230A.

*Will not be offered this year*

**MGT 230B Dynamics of Leadership: Decision Making and Goal Setting /5 cr. hr./5 period (.5 lec.)**

Achieving positive ends. Includes goal setting, decision making, life planning, and identifying a personal philosophy.

*Information:* MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230.

*Information:* Same as STU 230B.

*Will not be offered this year*

**MGT 230C Dynamics of Leadership: Team Building and Empowering/ .5 cr. hr./5 period (.5 lec.)**

Positive group dynamics. Includes team building and delegating.

*Information:* MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230.

*Information:* Same as STU 230C.

*Will not be offered this year*

**MGT 230D Dynamics of Leadership: Ethics in Leadership /5 cr. hr./ .5 period (.5 lec.)**

Development of ethical behavior. Includes ethics in leadership and servant leadership.

*Information:* MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230.

*Information:* Same as STU 230D.

*Will not be offered this year*

**MGT 230E Dynamics of Leadership: Conflict and Change /5 cr. hr./ .5 period (.5 lec.)**

Elements of the change process. Includes initiating change and managing conflict.

*Information:* MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230.

*Information:* Same as STU 230E.

*Will not be offered this year*

**MGT 230F Dynamics of Leadership: Developing Viable Leadership Project /5 cr. hr./5 period (.5 lec.)**

Effective leadership skills. Includes designing and completing leadership projects.

*Information:* MGT 230A, 230B, 230C, 230D, 230E, and 230F together constitute MGT 230.

*Information:* Same as STU 230F.

*Will not be offered this year*

**MGT 270 Computer Applications for Managers /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* CSA 101 or proficiency with Microsoft Office software.

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, interaction with the information systems department, project management, presentations, and spreadsheets for managerial decision-making.

*Offered:* Fall/Spring

**MGT 276 Human Resources /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* BUS 100.

Practical aspects of personnel management and support. Includes roles and concepts, acquiring human resources, administering the personnel

program, developing employee potential, maintaining the workforce, and future outlook for personnel management.

*Offered:* Fall/Spring

**MGT 278 Labor/Management Relations /3 cr. hrs./3 periods (3 lec.)**

Examination of basic principles and current status of labor/management relations in the United States. Includes modern society and industrial relations, the American Labor Movement, the collective bargaining process, and government regulation. Also includes union-management patterns, and an overall assessment of the consequences of collective bargaining and the future of labor-management relations.

*Offered:* Fall

**MGT 280 Business Organization and Management /3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s):* BUS 100 and any other MGT course.

Overview of the functions performed and issues faced by managers in business. Includes theory, general research findings, and knowledge from a managerial perspective. Also includes diverse philosophies for understanding management as a total system within the constraints imposed by society, government, technology, and ideology.

*Offered:* Fall/Spring/Summer

**MGT 283 Organizational Planning for the New Economy /3 cr. hrs./3 periods (3 lec.)**

Techniques of planning in light of contemporary economic factors. Includes issues of the new economy, strategic planning and thinking, planning models, and using a case study in planning for a government agency, business, or non-profit organization.

*Offered:* Fall

**MGT 285 Leading a Non-Profit Organization /3 cr. hrs./3 periods (3 lec.)**

Overview of the issues and tasks related to leading a non-profit organization. Includes types of non-profit organizations; establishing and planning, evaluating, and marketing non-profit organizations, and effective communication with constituencies.

*Will not be offered this year*

**MGT 286 Funding and Finance in a Non-Profit Organization / 3 cr. hrs./3 periods (3 lec.)**

Financial issues related to leadership and management of a non-profit organization. Includes fund raising and other revenue sources, financial management, accounting principles, and tax codes regarding potential donors.

*Will not be offered this year*

**MGT 287 Strategic Community Alliances of Non-Profit Organizations /3 cr. hrs./3 periods (3 lec.)**

Survey of the types of relationships non-profit organizations have with their communities. Includes community profiles, social change in multiple communities, functions of boards of directors, managing volunteer workers from the community, and collaborating with other organizations.

*Will not be offered this year*

## MARKETING

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**MKT 111 Principles of Marketing /3 cr. hrs./3 periods (3 lec.)**

Introduction to marketing principles and strategies that are survival tools for not-for-profit and for-profit organizations in today's global and competitive market. Includes the marketing variables product, price, channels of distribution, physical distribution, and promotion. Also includes strategic planning, consumer characteristics and behavior, market environments and market research.

*Offered:* Fall/Spring/Summer

**MKT 113 Salesmanship /3 cr. hrs./3 periods (3 lec.)**

Basic principles and techniques of relationship selling and their practical application to the selling process. Includes selling as a profession, legal and ethical issues, customer and product knowledge, and steps in the selling process.

*Offered:* Fall

**MKT 125 Advertising /3 cr. hrs./3 periods (3 lec.)**

Advertising principles and concepts as applied in a business setting. Includes developing advertising strategies within the marketing framework, advertising research, advertising media planning, and creating and producing advertisements.

*Offered:* Fall/Spring



**MKT 139 Retailing /3 cr. hrs./3 periods (3 lec.)**

Business activities of selling goods and services to final customers. Includes panoramic view of the many facets of retail industry such as fashion, consumer behavior, retail management, and career opportunities. Also includes focus on practical application.

*Offered: Fall*

**MKT 150 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)**

In depth study of the logistical function. Includes customer service standards, inventory control concepts, transportation methods, order processing systems, warehousing location analysis, industrial packaging, and materials handling.

*Will not be offered this year*

**MKT 160 Marketing for Nonprofit Organizations /3 cr. hrs./3 periods (3 lec.)**

Application of marketing principles and practices to nonprofit organizations. Includes marketing terminology and strategic planning concepts. Also includes student design of an integrated marketing plan for a nonprofit organization.

*Will not be offered this year*

**MATHEMATICS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338. *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. A satisfactory assessment test score may be requested in lieu of, or in addition to, the listed prerequisites for any course.

*Information:* Students who have earned credit in any college mathematics course equivalent to or above MAT 082 will not receive credit for MAT 082 or any of its components without permission of the Mathematics Department Chair.

**MAT 050 Approaching Mathematics Positively /1 cr. hr./1 period (1 lec.)**

Designed for students who avoid taking mathematics courses or who have anxiety in mathematics courses. Includes defining mathematics anxiety, underlying causes, and practicing anxiety reduction techniques. Also includes mathematics study and test-taking.

*Information:* Same as STU 050.

*Offered: Fall/Spring/Summer*

**MAT 051 Math Study Skills /3 cr. hrs./3 periods (3 lec.)**

Designed for students with recent mathematics coursework, who place lower on the COMPASS assessment than the math courses they have taken. Includes the development of skills in listening, remembering, note taking, outlining, applying study methods and interpreting pictorial aids.

*Will not be offered this year*

**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.

*Offered: Fall/Spring/Summer*

**MAT 082A Basic Mathematics: Module A /1 cr. hr./1 period (1 lec.)**

Module A constitutes approximately the first one-third of MAT 082.

*Information:* MAT 082A, 082B, and 082C together constitute MAT 082.

*Offered: Fall/Spring/Summer*

**MAT 082B Basic Mathematics: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 082A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 082.

*Information:* MAT 082A, 082B, and 082C together constitute MAT 082.

*Offered: Fall/Spring/Summer*

**MAT 082C Basic Mathematics: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 082B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 082.

*Information:* MAT 082A, 082B, and 082C together constitute MAT 082.

*Offered: Fall/Spring/Summer*

**MAT 086 Prealgebra /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 082 or satisfactory score on the mathematics assessment test.

Transition from arithmetic to algebra. Includes signed numbers, order of operations, polynomials, fractions, linear equations, area and perimeter, decimals, percents, and ratio and proportion.

*Offered: Fall/Spring/Summer*

**MAT 086A Prealgebra: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 082 or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-third of MAT 086.

*Information:* MAT 086A, 086B, and 086C together constitute MAT 086.

*Offered: Fall/Spring/Summer*

**MAT 086B Prealgebra: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 086A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 086.

*Information:* MAT 086A, 086B, and 086C together constitute MAT 086.

*Offered: Fall/Spring/Summer*

**MAT 086C Prealgebra: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 086B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 086.

*Information:* MAT 086A, 086B, and 086C together constitute MAT 086.

*Offered: Fall/Spring/Summer*

**MAT 092 Elementary Algebra /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 086 or satisfactory score on the mathematics assessment test.

Introduction to basic algebra. Includes the real number system, algebraic expressions, linear equations and inequalities, integer exponents, polynomials, simple rational expressions, and square roots.

*Offered: Fall/Spring/Summer*

**MAT 092A Elementary Algebra: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 086 or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-third of MAT 092.

*Information:* MAT 092A, 092B, and 092C together constitute MAT 092.

*Offered: Fall/Spring/Summer*

**MAT 092B Elementary Algebra: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 092A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 092.

*Information:* MAT 092A, 092B, and 092C together constitute MAT 092.

*Offered: Fall/Spring/Summer*

**MAT 092C Elementary Algebra: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 092B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 092.

*Information:* MAT 092A, 092B, and 092C together constitute MAT 092.

*Offered: Fall/Spring/Summer*

**MAT 106 Elementary Data Analysis and Statistical Inference /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 086 or satisfactory score on the mathematics assessment test.

Introduction to statistics. Includes the collection and presentation of data and statistical measures.

*Offered: Fall/Spring/Summer*

**MAT 107 Introduction to Symbolic Logic /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* MAT 086 or satisfactory score on the mathematics assessment test.

Fundamentals of mathematical reasoning and logic with applications. Includes introduction to arguments, Venn diagrams, compound statements, truth functional connectives, and theoretical aspects of truth tables.

*Will not be offered this year*

**MAT 107A Introduction to Symbolic Logic: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 086 or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-half of MAT 107.

*Information:* MAT 107A, and 107B together constitute MAT 107.

*Will not be offered this year*

**MAT 107B Introduction to Symbolic Logic: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 107A or concurrent enrollment.

Module B constitutes approximately the second one-half of MAT 107.

*Information:* MAT 107A, and 107B together constitute MAT 107.

*Will not be offered this year*

**MAT 108 Practical Geometry and Trigonometry /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* MAT 086 or satisfactory score on the mathematics assessment test.

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.

*Offered:* Fall/Spring/Summer

**MAT 108A Practical Geometry and Trigonometry: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 086 or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-half of MAT 108.

*Information:* MAT 108A and 108B together constitute MAT 108.

*Offered:* Fall/Spring/Summer

**MAT 108B Practical Geometry and Trigonometry: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 108A or concurrent enrollment.

Module B constitutes approximately the second one-half of MAT 108.

*Information:* MAT 108A and 108B together constitute MAT 108.

*Offered:* Fall/Spring/Summer

**MAT 109A Introduction to Combinatorics and Probability /1 cr. hr./1 period (1 lec.)**

Introduction to the uses of sets in combinatorics. Includes factorials, permutations, and combinations and probability.

*Will not be offered this year*

**MAT 109B Topics in Discrete Mathematics /1 cr. hr./1 period (1 lec.)**

Selected topics in college level mathematics. Includes number theory, graph theory, matrices, and sequences.

*Will not be offered this year*

**MAT 122 Intermediate Algebra /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 092 or satisfactory score on the mathematics assessment test.

Basic algebraic functions. Includes the language of sets, lines in the plane, systems of linear equations, rational expressions and equations, radical expressions and equations, quadratic equations, literal equations, exponents and logarithms, functions and optional topics.

*Offered:* Fall/Spring/Summer

**MAT 122A Intermediate Algebra: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 092 or concurrent enrollment in MAT 092C or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-third of MAT 122.

*Information:* MAT 122A, 122B, and 122C together constitute MAT 122.

*Offered:* Fall/Spring/Summer

**MAT 122B Intermediate Algebra: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 122A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 122.

*Information:* MAT 122A, 122B, and 122C together constitute MAT 122.

*Offered:* Fall/Spring/Summer

**MAT 122C Intermediate Algebra: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 122B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 122.

*Information:* MAT 122A, 122B, and 122C together constitute MAT 122.

*Offered:* Fall/Spring/Summer

**MAT 142 Topics in College Mathematics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 122 or satisfactory score on the mathematics assessment test.

Survey of mathematical topics and applications. Includes application of mathematics to the social services, management science, growth, and probability and statistics.

*Offered:* Fall/Spring/Summer

**MAT 146 Mathematics for Elementary Teachers I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 142 or higher.

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 number systems, set theory, and algebraic reasoning and problem solving. Also includes the technology to teach mathematics.

*Offered:* Fall/Spring/Summer

**MAT 147 Mathematics for Elementary Teachers II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 146.

Continuation of MAT 146. Includes measurement, basic geometry, probability, and statistics. Also includes the technology to teach mathematics.

*Offered:* Fall/Spring/Summer

**MAT 151 College Algebra /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* MAT 122 or satisfactory score on the mathematics assessment test.

Introduction to college-level algebra. Includes equations, functions, systems of equations, exponential and logarithmic functions, graphing of higher order polynomial and rational functions, sequences and series, and calculator use.

*Offered:* Fall/Spring/Summer

**MAT 151A College Algebra: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 122 or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-fourth of MAT 151.

*Information:* MAT 151A, 151B, 151C, and 151D together constitute MAT 151.

*Offered:* Fall/Spring/Summer

**MAT 151B College Algebra: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 151A or concurrent enrollment.

Module B constitutes approximately the second one-fourth of MAT 151.

*Information:* MAT 151A, 151B, 151C, and 151D together constitute MAT 151.

*Offered:* Fall/Spring/Summer

**MAT 151C College Algebra: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 151B or concurrent enrollment.

Module C constitutes approximately the third one-fourth of MAT 151.

*Information:* MAT 151A, 151B, 151C, and 151D together constitute MAT 151.

*Offered:* Fall/Spring/Summer

**MAT 151D College Algebra: Module D /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 151C or concurrent enrollment.

Module D constitutes approximately the fourth one-fourth of MAT 151.

*Information:* MAT 151A, 151B, 151C, and 151D together constitute MAT 151.

*Offered:* Fall/Spring/Summer

**MAT 167 Introductory Statistics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 151 or satisfactory score on the mathematics assessment test.

Introduction to statistics. Includes sampling; data display; measures of central tendency, variability, and position; random variables; probability; probability distributions; confidence intervals; hypothesis testing; and regression.

*Offered:* Fall/Spring/Summer

**MAT 172 Finite Mathematics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 151 or satisfactory score on the mathematics assessment test.

Mathematics for students majoring in business. Includes set theory, partitions, permutations, combinations, probability, Bernoulli trials, Markov chains and the simplex method of linear programming.

*Offered:* Fall/Spring/Summer

**MAT 173 Mathematics for Business I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* CIS 100, MAT 151.

Introduction to business finite mathematics. Includes basic probability, summation, conditional probability and independence, Bayes' Theorem, compound interest, random variables, random sampling, and computer skills.

*Offered:* Fall/Spring/Summer

**MAT 174 Mathematics for Business II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 173.

Continuation of MAT 173. Includes distributions, normal distribution, basic statistics, integration, common business functions, differentiation, and computer skills.

*Offered:* Fall/Spring/Summer

**MAT 182 Trigonometry /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 151 or satisfactory score on the mathematics assessment test.

Introduction to trigonometric functions. Includes graphs, identities, angle measure, vectors, polar coordinates, and conic sections.

*Offered:* Fall/Spring/Summer

**MAT 182A Trigonometry: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 151 or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-third of MAT 182.

*Information:* MAT 182A, 182B, and 182C together constitute MAT 182.

*Offered:* Fall/Spring/Summer

**MAT 182B Trigonometry: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 182A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 182.

*Information:* MAT 182A, 182B, and 182C together constitute MAT 182.

*Offered:* Fall/Spring/Summer

**MAT 182C Trigonometry: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* MAT 182B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 182.

*Information:* MAT 182A, 182B, and 182C together constitute MAT 182.

*Offered:* Fall/Spring/Summer

**MAT 187 Precalculus /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite:* MAT 122 or satisfactory score on the mathematics assessment test.

*Recommended:* For highly motivated students who have strong algebraic skills.

College-level algebra and trigonometry. Includes equations, algebraic functions, inequalities, systems, conic sections, sequences and series, trigonometric functions, polar form, and partial fractions. Also includes intensive preparation for analytic geometry and calculus.

*Information:* Credit is allowed for MAT 151 and 182 or MAT 187, but not all three.

*Offered:* Fall/Spring/Summer

**MAT 212 Topics in Calculus /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 151 or satisfactory score on the mathematics assessment test.

Calculus for students majoring in business. Includes limits, continuity, differentiation and integration of algebraic functions.

*Offered:* Fall/Spring/Summer

**MAT 220 Calculus I /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite(s):* MAT 151 and MAT 182 or 187 or satisfactory score on the mathematics assessment test.

Introduction to analytical geometry and calculus. Includes limits, continuity, differentiation and integration of algebraic and basic trigonometric functions, and applications of differentiation and integration.

*Offered:* Fall/Spring/Summer

**MAT 227 Discrete Mathematics in Computer Science /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* MAT 220 or higher and CIS 129 or programming experience.

Mathematics 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.

*Offered:* Fall/Spring/Summer

**MAT 231 Calculus II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* MAT 220.

Continuation of MAT 220. Includes differentiation and integration of logarithmic and exponential functions, techniques and applications of integration and infinite series.

*Offered:* Fall/Spring/Summer

**MAT 241 Calculus III /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* MAT 231.

Continuation of MAT 231. Includes conic sections, polar coordinates, solid geometry, two and three dimensional vectors, moments, partial derivatives and multiple integration.

*Offered:* Fall/Spring/Summer

**MAT 252 Introduction to Linear Algebra /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 231 and consent of instructor, or MAT 241.

Introduction to vector spaces and linear transformations. Includes systems of linear equations, vector spaces, inner product spaces, matrices, linear transformations, and technology.

*Offered:* Fall/Spring

**MAT 262 Differential Equations /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 231.

Introduction to differential equations. Includes first order differential equations, higher order differential equations, systems of differential equations, Laplace transforms, approximating methods, and technology. Also includes applications.

*Offered:* Fall/Spring/Summer

**MAT 295 Independent Research in Mathematics /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

Experience in mathematical research. Specific content to be determined by student and instructor.

*Information:* May be taken three times for a maximum of twelve credit hours.

*Offered:* Fall/Spring/Summer

**MAT 296 Independent Studies in Mathematics /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

Independent studies and projects in mathematics. Content to be determined by conference between student and instructor.

*Information:* May be taken two times for a maximum of eight credit hours.

*Offered:* Fall/Spring/Summer

## MUSIC

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**MUS 051 Evening Wind Ensemble /1 cr. hr./2 periods (1 lec., 1 lab)**

*Prerequisite(s):* Students chosen by audition.

Advanced performances of instrumental music. Focuses on reading and interpreting band literature.

*Information:* May be taken eight times for a maximum of eight credit hours.

*Will not be offered this year*

**MUS 052 Introduction to Ear Training /2 cr. hrs./2 periods (2 lec.)**

*Recommended:* Students considering music as a major are encouraged to take MUS 052 and 102 concurrently.

Ear training for individuals with little or no musical background. Includes identification of keys on a piano keyboard and notes on the musical staff, visual and aural recognition of intervals, and dictation and performance of simple rhythmic patterns. Also includes sight singing of simple melodies, identifying major and minor key signatures and scales, singing of major and minor scales, and intervals. Also includes aural identification of individual pitches within major scales, and listening to short melodic figures and playing them back on keyboards.

*Offered:* Fall/Spring

**MUS 054 Introductory Jazz Improvisation /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s):* Students chosen by audition.

Basic principles and techniques of jazz improvisation. Enrollment determined by audition with instructor.

*Information:* May be taken six times for a maximum of twelve credit hours.

*Offered:* Fall/Spring

**MUS 055 Introduction to Piano I /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 good learning and practice methods. Also includes transposition of simple compositions, sight reading, and harmonizations of melodies.

*Offered:* Fall/Spring/Summer

**MUS 056 Introduction to Piano II /2 cr. hrs./2 periods (2 lec.)**

Continuation of MUS 055. Expansion and refinement of piano playing techniques.

*Information:* Designed for non-music majors.

*Offered:* Spring

**MUS 061 Applied Music-Private Instruction: Brass (Non Major) /2 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

*Information:* May be taken four times for a maximum of eight credit hours.

*Offered:* Fall/Spring

**MUS 062 Applied Music-Private Instruction: Guitar (Non Major) /2 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

*Information:* May be taken four times for a maximum of eight credit hours.

*Offered:* Fall/Spring/Summer

**MUS 063 Applied Music-Private Instruction: Percussion (Non Major) /2 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

*Information:* May be taken four times for a maximum of eight credit hours.

*Offered:* Fall/Spring/Summer



**MUS 064 Applied Music-Private Instruction: Piano (Non Major) / 2 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall/Spring/Summer

**MUS 065 Applied Music-Private Instruction: Strings (Non Major) / 2 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall/Spring

**MUS 066 Applied Music-Private Instruction: Voice (Non Major) / 2 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall/Spring

**MUS 067 Applied Music-Private Instruction: Woodwinds (Non Major) / 2 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall/Spring/Summer

**MUS 068 Applied Music-Private Instruction (Non Major) / 1 cr. hrs./1.5 period (.5 lab)**

Private weekly lessons. Course of study jointly determined by the instructor and student. Development of performance skills is stressed.

Information: May be taken four times for a maximum of four credit hours.

Offered: Fall/Spring/Summer

**MUS 100 Guitar I / 2 cr. hr./2 periods (2 lec.)**

Development of the principles of guitar playing with emphasis on a variety of styles and guitar repertoire. Includes parts of the guitar, music symbols, tuning, playing position, right and left hand techniques, notes on the first through third strings, notes on the fourth string, thumb technique, chord strumming, and right-hand arpeggio patterns. Also includes notes on the fifth and sixth strings, sharps and flats, twelve (12) bar blues, right hand chord technique, and open position chords.

Offered: Fall/Spring/Summer

**MUS 101 Guitar II / 2 cr. hr./2 periods (2 lec.)**

Prerequisite(s): MUS 100 or consent of instructor.

Continuation of MUS 100 with a more detailed development of guitar skills. Includes basic musicianship, sight-reading, repertoire development, ensemble playing, and improvisation.

Offered: Fall/Spring/Summer

**MUS 102 Music Fundamentals / 3 cr. hrs./3 periods (3 lec.)**

Recommended: Students considering music as a major are encouraged to take MUS 052 and 102 concurrently.

Introduction to the fundamentals of music and music notation. Includes study of harmony, melody, rhythm, and music terminology. Also includes clefs and staff, notes, intervals, scales, modes, chords, keys and signatures, meter, and form.

Offered: Fall/Spring/Summer

**MUS 104 Music and the Computer / 2 cr. hrs./3 periods (1 lec., 2 lab)**

Instruction in basic computer literacy for musicians. Includes generic applications and music specific programs with hands on-experience.

Will not be offered this year

**MUS 108 Pima Jazz Band I / 2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): Enrollment by audition.

Rehearsal and performance of many styles of music in the jazz idiom. Includes progressive development of musical skills through interpretation of literature.

Information: May be taken two times for a maximum of four credit hours.

Offered: Fall/Spring

**MUS 109 Pima Jazz Band II / 2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): Enrollment by audition.

Continuation of MUS 108. Includes continued emphasis on progressive development of musical skills through interpretation of literature.

Information: May be taken two times for a maximum of four credit hours.

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.

Offered: Fall/Spring

**MUS 112 Community Jazz Band I / 2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): Students chosen by audition.

Rehearsal and performance of many styles of music in the jazz idiom. Includes progressive development of musical skills through interpretation of professional literature.

Information: Members selected primarily from Tucson's adult community.

Information: May be taken two times for a maximum of four credit hours.

Will not be offered this year

**MUS 113 Community Jazz Band II / 2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): Students chosen by audition.

Continuation of MUS 112. Includes continued emphasis on progressive development of musical skills through interpretation of professional literature.

Information: Membership selected primarily from Tucson's adult community.

Information: May be taken two times for a maximum of four credit hours.

Will not be offered this year

**MUS 115 Guitar Ensemble / 1 cr. hr./2 periods (2 lec.)**

Prerequisite(s): Students chosen by audition.

In depth study of the music for guitar ensemble ranging from the Renaissance to the present. Includes interpretation of ensemble literature, practice of proper ensemble techniques of balance, intonation and timbre, and performance of selected compositions in a public recital.

Information: May be taken six times for a maximum of six credit hours.

Will not be offered this year

**MUS 116 Pima Community College Orchestra I / 2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): Students chosen by audition.

Progressive development of musical skills through interpretation of orchestral literature. Includes participation in regular rehearsals and performances.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall/Spring

**MUS 117 Pima Community College Orchestra II / 2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): Students chosen by audition.

Continuation of MUS 116. Includes participation in regular rehearsals and performances.

Information: May be taken four times for a maximum of eight credit hours.

Offered: Fall/Spring

**MUS 120 Concert Band I / 3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Students chosen by audition.

Progressive development of musical skills through interpretation of literature. Includes participation in regular rehearsals and performances.

Information: May be taken six times for a maximum of eighteen credit hours.

Offered: Fall/Spring

**MUS 121 Concert Band II / 3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Students chosen by audition.

Continuation of MUS 120. Includes participation in regular rehearsals and performances.

Information: May be taken six times for a maximum of eighteen credit hours.

Offered: Fall/Spring

**MUS 125 Theory and Structure of Diatonic Music / 3 cr. hrs./3 periods (3 lec.)**

Review of music fundamentals followed by figured bass, chord functions and voicing, voice leading, harmonic progressions, part writing, and harmonization. Includes foundations of tonal music and composition and provides basic first year level music theory for transfer.

Information: Required for all other music structure courses.

Offered: Fall/Spring

**MUS 126 Theory and Structure of Chromatic Music / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MUS 125.

Chromatic harmony, melody, and associated contrapuntal and rhythmic structure. Includes modulation, chromatic chords, use of sevenths and ninth chords, and in-depth analysis of selected masterworks.

Offered: Spring

**MUS 127 Aural Perception: Diatonic and Rhythmic Skills / 2 cr. hr./2 periods (2 lec.)**

Recommended: Students who are music majors take MUS 125 and 127 concurrently.

Development of aural techniques. Includes rhythmic dictation, intervallic recognition, sight-singing, rhythmic performance, and clapping and count-



ing rhythms similar to those used in dictation.

*Offered: Fall/Spring*

**MUS 129 Aural Perception: Harmony /2 cr. hr./2 periods (2 lec.)**

*Prerequisite(s): MUS 127.*

Development of the perception of chromatic tonal harmony, melody, modulation, and forms. Includes sight-singing and dictation.

*Offered: Fall/Spring*

**MUS 130 Chorale (SATB) /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): Students chosen by audition.*

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 six times for a maximum of eighteen credit hours.

*Offered: Fall/Spring*

**MUS 131 College Singers (SATB) /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s): Students chosen by audition.*

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:* May be taken six times for a maximum of eighteen 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 breathing, diction, tone, and rhythm.

*Offered: Fall/Spring*

**MUS 137 Voice Class II /2 cr. hrs./2 periods (2 lec.)**

*Prerequisite(s): MUS 136.*

Continuation of MUS 136. Includes practical training in basic skills and singing without specialization. Also includes breathing, diction and interpretation of song literature.

*Offered: Fall/Spring*

**MUS 141 Piano Class I /2 cr. hr./2 periods (2 lec.)**

Beginning instruction employing group and individual techniques in an electronic lab situation. Includes scales, chords, repertoire, technique, practice habits, transposition of single-line melodies, and sight reading.

*Offered: Fall/Spring*

**MUS 142 Piano Class II /2 cr. hr./2 periods (2 lec.)**

*Prerequisite(s): MUS 141.*

Continuation of MUS 141. Incorporates intermediate piano instruction of group and individual practice in an electronic lab. Includes scales, chords, harmonization of major and minor melodies with different accompaniment patterns, and transposition of short major and minor pieces. Also includes repertoire, continued technique and practice habits, and sight reading.

*Offered: Spring*

**MUS 143 Piano Class III /2 cr. hr./2 periods (2 lec.)**

*Prerequisite(s): MUS 142.*

Continuation of MUS 142. Incorporates intermediate piano instruction utilizing group and individual practice in an electronic lab. Includes scales, chords, arpeggios, harmonizations of major and minor pieces, transpositions of pieces, repertory pieces, technique and practice habits, sight reading, and score reading.

*Offered: Fall*

**MUS 144 Piano Class IV /2 cr. hr./2 periods (2 lec.)**

*Prerequisite(s): MUS 143.*

Continuation of MUS 143. Incorporates advanced piano instruction utilizing group and individual practice in an electronic lab. Includes scales, arpeggios, learning methods, technique building exercises, memory method, and advanced methods of practicing.

*Offered: Fall/Spring*

**MUS 147 Singing/Movement for the Stage /2 cr. hrs./3 periods (1 lec., 2 lab)**

Basics of singing in the context of movement on the stage. Includes familiarity with the stage and the movements that work best for the performer, how to get on and off stage as yourself or as a character, how to approach a characterization, how to make your body work for you, and how to move with or against the music. Also includes live accompaniment.

*Information:* Singing skill is required.

*Information:* May be taken four times for a maximum of eight credit hours.

*Will not be offered this year*

**MUS 148 Musical Theater Workshop /2 cr. hrs./2 periods (2 lec.)**

Movement and singing to enhance projection and communication capabilities. Includes auditioning techniques, live accompaniment, and exploring the musical theater as a way to communicate.

*Information:* May be taken four times for a maximum of eight credit hours.

*Will not be offered this year* **MUS 149 Opera Workshop /2 cr. hrs./ 3 periods (1 lec./2 lab)**

*Prerequisite(s): Students chosen by audition.*

Introduction to the techniques of opera. Includes stage movement, character development, and acting. Also includes arias, duets, ensembles, and auditioning techniques.

*Information:* May be taken four times for a maximum of twelve credit hours.

*Offered: Fall/Spring*

**MUS 151 Exploring Music /3 cr. hrs./3 periods (3 lec.)**

Introduction to various musical styles with emphasis on listening and application of the basic elements of music (melody, rhythm, harmony, form and timbre) to each style.

*Offered: Fall/Spring/Summer*

**MUS 154 Jazz Improvisation /2 cr. hr./2 periods (2 lec.)**

*Prerequisite(s): MUS 102 or audition.*

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:* May be taken six times for a maximum of twelve credit hours.

*Offered: Fall/Spring*

**MUS 155 Introduction to Electronic Music I /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Recommended: Ability to read music.*

Introduction to producing music with Musical Instrument Digital Interface (MIDI) configurations. Includes computers, printers, synthesizers and other compatible MIDI configurations.

*Offered: Fall/Spring/Summer*

**MUS 156 Introduction to Electronic Music II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): MUS 155.*

Continuation of MUS 155. Includes emphasis on more complex configurations, their applications in song arrangements, and continued study of music production with Musical Instrument Digital Interface (MIDI) configurations.

*Offered: Fall/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 focus on music in the marketplace, songwriting/composition and publishing. Also includes copyright procedures, business affairs, agents, artist management, and concert production.

*Offered: Fall*

**MUS 158 Music Industry II: Music in Recording and Mass Media / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): MUS 157.*

Continuation of MUS 157. Includes operation, scope, and career opportunities in the music business. Also includes focus on the record industry, environmental music, uses of music in radio, telecommunications and film, and on 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 beginning with the foundations of music in colonial America through current trends in today's society. Includes ragtime, blues, jazz, country, Broadway musical, folk, and rock.

*Offered: Fall/Spring/Summer*

**MUS 161 Applied Music-Private Instruction: Brass I (Major) /2 cr. hrs./ .5 period (.5 lab)**

*Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring*

**MUS 162 Applied Music-Private Instruction: Guitar I (Major) /2 cr. hrs./ .5 period (.5 lab)**

*Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer*

**MUS 163 Applied Music-Private Instruction: Percussion I (Major) / 2 cr. hrs./ .5 period (.5 lab)**

*Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer*

**MUS 164 Applied Music-Private Instruction: Piano I (Major) /1 cr. hrs./ .5 period (.5 lab)***Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 165 Applied Music-Private Instruction: Strings I (Major) /2 cr. hrs./ .5 period (.5 lab)***Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 166 Applied Music-Private Instruction: Voice I (Major) /2 cr. hrs./ .5 period (.5 lab)***Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 167 Applied Music-Private Instruction: Woodwinds I (Major) /2 cr. hrs./ .5 period (.5 lab)***Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 168 Applied Music-Private Instruction I (Major) /1 cr. hr./ .5 period (.5 lab)***Prerequisite(s): Students chosen by audition.*

Private weekly lessons. Includes participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 171 Applied Music-Private Instruction: Brass II (Major) /2 cr. hrs. / .5 period (.5 lab)***Prerequisite(s): MUS 161.*

Continuation of MUS 161. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 172 Applied Music-Private Instruction: Guitar II (Major) /2 cr. hrs. / .5 period (.5 lab)***Prerequisite(s): MUS 162.*

Continuation of MUS 162. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 173 Applied Music-Private Instruction: Percussion II (Major) /2 cr. hrs. / .5 period (.5 lab)***Prerequisite(s): MUS 163.*

Continuation of MUS 163. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 174 Applied Music-Private Instruction: Piano II (Major) /1 cr. hr. / .5 period (.5 lab)***Prerequisite(s): MUS 164.*

Continuation of MUS 164. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 175 Applied Music-Private Instruction: Strings II (Major) /2 cr. hrs. / .5 period (.5 lab)***Prerequisite(s): MUS 165.*

Continuation of MUS 165. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 176 Applied Music-Private Instruction: Voice II (Major) /2 cr. hrs. / .5 period (.5 lab)***Prerequisite(s): MUS 166.*

Continuation of MUS 166. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 177 Applied Music-Private Instruction: Woodwinds II (Major) /2 cr. hrs. / .5 period (.5 lab)***Prerequisite(s): MUS 167.*

Continuation of MUS 167. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 178 Applied Music-Private Instruction II (Major) /1 cr. hrs. / .5 period (.5 lab)***Prerequisite(s): MUS 168.*

Continuation of MUS 168. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 201 History and Literature of Music I /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MUS 102 or 125.*

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.

*Will not be offered this year***MUS 202 History and Literature of Music II /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MUS 102 or 125.*

Music history and literature from Bach to the present. Includes emphasis on specific works and composers as representative of the evolution of Western music.

*Offered: Spring***MUS 203 Popular Music Styles /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MUS 102 or MUS 125 or Consent of Instructor.*

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.

*Offered: Spring***MUS 207 Music Composition /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MUS 125.*

Development of compositional skills. Includes techniques, notation, and formal models. Also includes problems of instrumentation and the practice of writing music.

*Will not be offered this year***MUS 223 Theory and Structure of Counterpoint /3 cr. hrs.(3 lec.)***Prerequisite: MUS 126*

Introduction to tonal counterpoint. Includes study and writing of melody, two-part species counterpoint, form generating techniques, imitation, canons, invertible counterpoint, ground bass variations, and fugue.

*Offered: Fall***MUS 224 Aural Perception: Melody and Rhythm /2 cr. hr./2 periods (2 lec.)***Prerequisite(s): MUS 127.*

Continuation of MUS 127. Includes analysis, dictation, sight-singing, and developing perception of melodic structures, and forms.

*Offered: Fall***MUS 226 Theory and Structure of Modern Music /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): MUS 125.*

Analysis of compositional models and notation in modern music. Includes examination and application of techniques, and reading and analysis of modern scores. Also includes analysis of aesthetics, historical, social, political, and philosophical aspects.

*Offered: Spring***MUS 228 Aural Perception: Modern /2 cr. hr./2 periods (2 lec.)***Prerequisite(s): MUS 127.*

Development of the perception of modern rhythms, melodies and harmony. Includes polytonality, atonality, modality, asymmetric meters, syncopated rhythms, quartal and secundal chords. Also includes sight singing and dictation in modern contexts.

*Offered: Spring***MUS 261 Applied Music-Private Instruction: Brass III (Major) /2 cr. hrs./ .5 period (.5 lab)***Prerequisite(s): MUS 171.*

Continuation of MUS 171. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 262 Applied Music-Private Instruction: Guitar III (Major) /2 cr. hrs./ .5 period (.5 lab)***Prerequisite(s): MUS 172.*

Continuation of MUS 172. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer*

**MUS 263 Applied Music-Private Instruction: Percussion III (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 173.*

Continuation of MUS 173. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 264 Applied Music-Private Instruction: Piano III (Major) /1 cr. hr./ .5 period (.5 lab)***Prerequisite(s): MUS 174.*

Continuation of MUS 174. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 265 Applied Music-Private Instruction: Strings III (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 175.*

Continuation of MUS 175. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 266 Applied Music-Private Instruction: Voice III (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 176.*

Continuation of MUS 176. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 267 Applied Music-Private Instruction: Woodwinds III (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 177.*

Continuation of MUS 177. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 268 Applied Music-Private Instruction III (Major) /1 cr. hr./ .5 period (.5 lab)***Prerequisite(s): MUS 178.*

Continuation of MUS 178. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 271 Applied Music-Private Instruction: Brass IV (Major) /2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 261.*

Continuation of MUS 261. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 272 Applied Music-Private Instruction: Guitar IV (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 262.*

Continuation of MUS 262. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 273 Applied Music-Private Instruction: Percussion IV (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 263.*

Continuation of MUS 263. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 274 Applied Music-Private Instruction: Piano IV (Major) / 1 cr. hr./5 period (.5 lab)***Prerequisite(s): MUS 264.*

Continuation of MUS 264. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 275 Applied Music-Private Instruction: Strings IV (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 265.*

Continuation of MUS 265. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 276 Applied Music-Private Instruction: Voice IV (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 266.*

Continuation of MUS 266. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring***MUS 277 Applied Music-Private Instruction: Woodwinds IV (Major) / 2 cr. hrs./5 period (.5 lab)***Prerequisite(s): MUS 267.*

Continuation of MUS 267. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 278 Applied Music-Private Instruction IV (Major) /1 cr. hr./ .5 period (.5 lab)***Prerequisite(s): MUS 268.*

Continuation of MUS 268. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams.

*Offered: Fall/Spring/Summer***MUS 296 Independent Studies in Music /1-3 cr. hr./3-9 periods (1 lec., 1-6 lab)***Prerequisite(s): MUS 102.*

Composition and/or in-depth study in an area of the student's choice with approval by the supervising instructor.

*Information:* May be taken four times for a maximum of four credit hours.*Offered: Fall/Spring*

## NURSING

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**NRS 104/104LC/104LS Nursing Process I /8 cr. hrs./16 periods (4 lec., 12 lab)***Prerequisite(s): Acceptance into the Nursing Program, HCA 102.**Corequisite(s): Concurrent enrollment in HCA 102, HCA 155 and WRT 101.*

Introduction to the application of the nursing process and to the concepts of nurse, health, client and environment, with emphasis on caring for adult and elderly clients. Includes the roles of the nurse as communicator, care provider, care manager, teacher, and member of the profession. Also includes college and clinical laboratory application of selected nursing skills and knowledge in acute care, long term care, and community settings, history of microcomputers, parts of a microcomputer system and the role of microcomputers in the healthcare setting.

*Offered: Fall/Spring***NRS 105/105LC/105LS Nursing Process II /9 cr. hrs./19 periods (4 lec., 15 lab)***Prerequisite(s): NRS 104, HCA 102, HCA 155, WRT 101.**Corequisite(s): BIO 205, and ECE 107 or ECE 117.*

Continuation of NRS 104. Application of the nursing process and expansion on the concepts of nurse, health, client and environment, with emphasis on caring for adult clients, and on the roles of the nurse as communicator, care provider, care manager, teacher and member of the nursing profession. Includes a focus on adult clients experiencing common health alterations. Also includes additional college and clinical laboratory application of selected nursing skills and knowledge in acute care and community settings.

*Offered: Fall/Spring***NRS 180 Transition to Practical Nursing /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s): BIO 205, ECE 107 or ECE 117, HCA 102, HCA 155, NRS 104, NRS 105, WRT 101.*

Nonclinical course which provides the theoretical preparation to qualify the student to apply for licensure by the Arizona State Board of Nursing as a Practical Nurse (LPN). Includes application of the nursing process to provide basic care to families in the maternity cycle, health of children and psychosocial health. Also includes the role of the LPN in relation to the nursing process.

*Offered: Fall/Spring*



**NRS 188/188LB Transition to Associate Degree Nursing /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* Graduate of Pima Community College Practical Nurse (PN) program after May, 1990 or hold a current valid Licensed Practical Nurse (LPN) license in Arizona. Must meet all admission criteria for the Associate Degree Nursing Program.

Nonclinical course facilitating transition of the Licensed Practical Nurse into the Pima Community College Associate Degree Nursing program. Includes role transition through the application of the nursing process and orients the student to the philosophy and major concepts of the ADN program. Also includes focus on adult clients experiencing selected health alterations and knowledge of the history of microcomputers, the parts of a microcomputer system and the role of microcomputers in the healthcare setting.

*Offered:* Fall/Spring

**NRS 196 Independent Study in Nursing /1-9 cr. hrs./1-9 periods (1-9 lec.)**

*Prerequisite(s):* Consent of instructor.

Independent readings or special projects. Content to be determined by conference between student and instructor.

*Offered:* Fall/Spring

**NRS 201/201LC Nursing Process III /9 cr. hrs./17 periods (5 lec., 12 lab)**

*Prerequisite(s):* NRS 105, BIO 205, HCA 102, HCA 155, ECE 107 or ECE 117. *Corequisite(s):* PSY 101, WRT 102.

Continuation of NRS 105. Application of the nursing process and expansion on the concepts of nurse, health, client, and environment, with an emphasis on family, child and psychosocial health. Also expands on the roles of the nurse as communicator, care provider, care manager, teacher and member of the nursing profession. Includes a focus on family's birth experience as well as complex health alterations related family, child, and clients with mental disorders in all care settings. Also includes additional clinical and laboratory application of selected nursing skills and knowledge to the developing family, child and seriously mentally ill clients in acute care and community settings.

*Offered:* Fall/Spring

**NRS 202/202LC Nursing Process IV /9 cr. hrs./21 periods (3 lec., 18 lab)**

*Prerequisite(s):* NRS 201.

*Corequisite(s):* NRS 203 and FSN 127 or FSN 154.

Continuation of Nursing 201. Application of the nursing process and expansion on the concepts of nurse, health, client, and environment, with emphasis on caring for and managing groups of clients, and on the roles of the nurse as communicator, care provider, care manager, teacher and member of the nursing profession. Includes a focus on clients experiencing multiple and complex health alterations. Also includes additional college and clinical laboratory application of selected nursing skills and knowledge in all healthcare settings.

*Information:* 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. hr./1 period (1 lec.)**

*Prerequisite(s):* NRS 201.

*Corequisite(s):* NRS 202.

Exploration of the nursing role. Includes current issues and trends in nursing and health care delivery and the role of the nurse as a member of the profession.

*Offered:* Fall/Spring

**NURSING ASSISTANT**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**NRA 101/101LC/101LS Nursing Assistant /4 cr. hrs./8 periods (2 lec., 6 lab)**

Basic client care nursing skills. Includes theory base for direct client care and fundamental and advanced psychomotor skills at the nursing assistant level.

*Offered:* Fall/Spring/Summer

**NRA 102/102LC/102LS Patient Care Technician /2 cr. hrs./4 periods (1 lec., 3 lab)**

*Prerequisite(s):* Certified Nursing Assistant or successful completion of NRA 101 within the last two years.

Multi-skilled approach to patient care. Includes legal and ethical responsibility, asepsis, dressing changes, catheterization, electrocardiograms, phlebotomy, tube feeding, and communication skills.

*Offered:* Fall/Spring/Summer

**NURSING CONTINUING EDUCATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**NCE 280 The Nurse As Manager /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* LPN, RN or consent of instructor.

Provides information for nurses to successfully transition between the roles of nurse clinician and nurse manager. Includes leadership and management, communication skills, decision making, delegating of work, health-care policy issues, effective use of power, networking, the law and ethics, and nursing informatics. Also includes change management, quality management, priority management, financial and budget management, management in the work setting, and personnel management.

*Will not be offered this year*

**OFFICE AND ADMINISTRATIVE PROFESSIONS**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338. (Formerly Administrative and Office Support Careers)

**OAP 040 Office and Business Technology Careers /3 cr. hrs./5 periods (2 lec., 3 lab)**

Exploration of office and business technology career opportunities. Includes exploring business technology, transcription and communication, filing systems, accounting and bookkeeping, business technology equipment and techniques, databases and spreadsheets, word processing, global market, telephone etiquette, and field trips.

*Offered:* Fall/Spring

**OAP 050 Fundamentals of Business English /1 cr. hr./1 period (1 lec.)**

English basics in business. Includes parts of speech, sentence patterns, and punctuation. Also includes emphasis on business-related material.

*Offered:* Fall/Spring

**OAP 100 Data Entry Beginning Keystroke Development /2 cr. hrs./4 periods (4 lab)**

*Recommended:* OAP 111A or keyboarding proficiency.

Training for beginning level speed and accuracy. Includes ten key pad, alpha-numeric pre-timed and self-timed exercises, and dexterity drills.

*Information:* May be taken four times for a maximum of eight credit hours.

*Offered:* Fall/Spring/Summer

**OAP 111 Computer Keyboarding and Document Production /3 cr. hrs./5 periods (2 lec., 3 lab)**

Theory and practice of computer keyboarding. Includes speed and accuracy techniques, language arts skills, correspondence, employment documents, and word processing commands.

*Offered:* Fall/Spring/Summer

**OAP 111A Computer Keyboarding and Document Production: Keyboard /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Techniques and functions for computer keyboarding skills. Includes keyboarding, speed and accuracy, language arts, and word processing commands.

*Offered:* Fall/Spring/Summer

**OAP 111B Computer Keyboarding and Document Production: Formatting Documents /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

*Prerequisite(s):* OAP 111A.

Continuation of OAP 111A. Includes speed and accuracy, language arts, correspondence, and word processing commands.

*Offered:* Fall/Spring/Summer

**OAP 111C Computer Keyboarding and Document Production: Applications /1 cr. hr./1.6 periods (.6 lec., 1 lab)**

*Prerequisite(s):* OAP 111B.

Continuation of OAP 111B. Includes speed and accuracy, correspondence, employment documents, language arts, and word processing commands.

*Offered:* Fall/Spring/Summer

**OAP 114 Computer Keyboarding: Skillbuilding /3 cr. hrs./6 periods (6 lab)**

*Recommended:* OAP 111A or equivalent proficiency on computer keyboard. Development of computer keyboarding. Includes skill assessment, skill building development, data input accuracy, increasing keyboarding accuracy, and skill building software.

*Offered:* Fall/Spring/Summer



**OAP 123 Professional Development for Administrative Support / 3 cr. hrs./6 periods (6 lab)**

*Recommended: OAP 111 or equivalent proficiency on computer keyboard, and CSA 152 or 153.*

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.

*Offered: Fall/Spring*

**OAP 134 Data Entry Advanced Keystroke Development / 2 cr. hrs./ 4 periods (4 lab)**

*Recommended: OAP 100 or 7000 keystrokes per hour.*

Training for advanced level speed and accuracy. Includes alpha-numeric pre-timed and self-timed exercises, dexterity drills, and speed measurement.

*Offered: Fall/Spring/Summer*

**OAP 141 Legal Terms / 3 cr. hrs./3 periods (3 lec.)**

Language used in a legal setting. Includes general terminology, court system, and specialized areas of law.

*Offered: Fall/Spring*

**OAP 142 Legal Procedures I / 3 cr. hrs./3 periods (3 lec.)**

*Recommended: OAP 114*

General law office procedures. Includes legal support staff, career development, legal ethics, written communication, calendaring, court system, preparation of legal documents, family law, contract law, and employment law.

*Offered: Fall/Spring*

**OAP 143 Legal Procedures II / 4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): OAP 142 or consent of instructor.*

Continuation of OAP 142. Includes legal support staff, court systems, civil litigation and torts, and criminal litigation procedures.

*Offered: Fall/Spring*

**OAP 151 Business English / 3 cr. hrs./3 periods (3 lec.)**

*Recommended: OAP 050 or assessment at the WRT 100 level.*

English fundamentals essential for modern business communication. Includes reference skills, parts of speech, basic sentence terms, verbals, sentences, punctuation, writing style, and grammar usage.

*Offered: Fall/Spring*

**OAP 161 Medical Office Procedures / 4 cr. hrs./5 periods (3 lec., 2 lab)**

*Recommended: OAP 114 or equivalent proficiency or concurrent enrollment, and OAP 162.*

Services and procedures used in a medical office. Includes human relations, telephone and electronic communication, financial activities, word processing, administrative support, filing, machine transcription, mail processing, patient records, insurance, and medical and business terms.

*Offered: Fall/Spring*

**OAP 162 Medical Terms I / 3 cr. hrs./3 periods (3 lec.)**

Terminology used in the medical field. Includes word parts and forms, anatomy and physiology, diseases, and reference materials.

*Offered: Fall/Spring*

**OAP 164 Medical Transcription I / 3 cr. hrs./4 periods (2 lec., 2 lab)**

*Recommended: OAP 162 or experience in the medical field, and word processing experience.*

Terms and format for transcribing medical reports. Includes ethics and legal responsibility, preparation of medical reports, transcription of medical records, rules, and medical terminology.

*Offered: Fall/Spring*

**OAP 171 Office Procedures / 4 cr. hrs./5 periods (3 lec., 2 lab)**

*Prerequisite(s): OAP 111.*

Functions and procedures used in a wide range of office activities. Includes business operations, visitors and clients, office functions, document production, communication skills, office duties and tasks, notetaking, travel arrangements, meetings and conferences, office equipment, and professional attitudes and image, Internet exploration, and job evaluation.

*Offered: Fall/Spring*

**OAP 199 Co-op Related Class in OAP / 1 cr. hr./1 period (1 lec.)**

*Corequisite(s): Concurrent enrollment in OAP 199WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered: Fall/Spring/Summer*

**OAP 199WK Co-op Work in OAP / 1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s): Concurrent enrollment in OAP 199 Co-op Related Class.*

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 two times for a maximum of sixteen credit hours.

*Offered: Fall/Spring/Summer*

**OAP 224 Machine Transcription / 3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): OAP 111 or computer keyboarding speed of 35 wpm and ability to format mailable documents and OAP 151.*

Skills and techniques of transcribing dictated materials. Includes transcription equipment, transcription techniques, language arts development, mailable documents, and career opportunity awareness.

*Offered: Fall/Spring*

**OAP 242 Legal Procedures III / 4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): OAP 143 or consent of instructor.*

Continuation of OAP 143. Includes business organizations, real estate, estate planning, wills and trusts, probate and protective proceedings.

*Offered: Spring*

**OAP 251 Business Communications / 3 cr. hrs./3 periods (3 lec.)**

*Recommended: OAP 151 or consent of instructor.*

Principles of effective writing and listening skills. Includes language development, verbal and nonverbal communications, customer relations, and writing and editing correspondence.

*Offered: Fall/Spring*

**OAP 262 Medical Terms II / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): OAP 162 or consent of instructor.*

Continuation of OAP 162. Includes advanced work with word parts and forms, anatomy and physiology, diseases, and reference materials. Also includes therapeutic drugs and medical reports.

*Offered: Fall/Spring*

**OAP 263 Medical Terminology for Disease Pathology / 3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s): OAP 262.*

Study of terminology related to the disease processes and their effects on the systems of the human body. Includes mechanisms of disease, and medical terminology related to anatomy and physiology, inflammation and immunity, infectious diseases, neoplasms, hereditary disease, nutritional diseases, and organs and body systems.

*Offered: Fall/Spring*

**OAP 264 Medical Transcription II / 3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): Keyboarding at 50 wpm, OAP 164 and 262.*

Continuation of OAP 164. Includes punctuation, capitalization, numbers, figures, abbreviations, business letter transcription, proofreading, spelling, word division and reference books.

*Offered: Fall/Spring*

**OAP 266 Medical Transcription III / 3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): Keyboarding at 60 wpm, OAP 264.*

Continuation of OAP 264. Includes advanced training in punctuation, capitalization, rules, medical correspondence, proofreading, prefixes and suffixes, transcription, and medical terms.

*Offered: Fall/Spring*

**OAP 297 Administrative Support Seminar / .25-4 cr. hrs./5-8 periods (.25-4 lec., .25-4 lab)**

*Prerequisite(s): Consent of instructor.*

Administrative support job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Will not be offered this year*

**OAP 299 Co-op Related Class in OAP / 1 cr. hr./1 period (1 lec.)**

*Corequisite(s): Concurrent enrollment in OAP 299WK Co-op Work.*

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.

*Information:* May be taken two times for a maximum of two credit hours.

*Offered: Fall/Spring/Summer*

**OAP 299WK Co-op Work in OAP / 1-8 cr. hrs./5-40 periods (5-40 lab)**

*Corequisite(s): Concurrent enrollment in OAP 299 Co-op Related Class.*

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.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Offered: Fall/Spring/Summer*

## PARALEGAL (LEGAL ASSISTANT)

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**LAS 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, legal research and legal analysis, state and federal judicial systems, and overview of litigation and specialty areas of law.

*Offered: Fall/Spring*

**LAS 102 Civil Litigation Procedures I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101 or concurrent enrollment, and REA 112 or higher, or a reading assessment score of at least 12th grade in both vocabulary and comprehension as measured by the college assessment process.*  
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.

*Offered: Fall/Spring*

**LAS 103 Legal Research /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101 and WRT 101 or employment in the legal or a related field.*

Principles and techniques of legal research. Includes categories of research materials, citing legal material, finding and using secondary authority, finding tools, Shepard's Citators, case law, constitutions, statutes and administrative law, analyzing research problems, and preparing research reports.

*Offered: Fall/Spring*

**LAS 104 Paralegal Ethics /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 103 or concurrent enrollment.*

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, attorneys' fees and fiduciary duties, competence, malpractice, ethical conduct issues in litigation, and professional integrity issues.

*Offered: Fall/Spring*

**LAS 106 Civil and Criminal Evidence /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 103 or concurrent enrollment.*

Paralegal's role in the analysis and application of the rules of evidence. Includes relevancy and its limits, privileges, use, impeachment, and exclusion of witnesses, opinion and expert testimony, hearsay, authentication, and contents of writings, recordings, and photographs.

*Offered: Fall/Spring*

**LAS 202 Civil Litigation Procedures II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 102.*

Continuation of LAS 102. Includes discovery/disclosure procedures in Federal Court, disclosure procedures 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.

*Offered: Fall/Spring*

**LAS 203 Tort Law Procedures /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101, 102.*

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 legal assistant in tort cases.

*Offered: Fall*

**LAS 204 Wills, Trusts, and Estates /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101 or employment in a legal related field.*

Preparation to assist a lawyer in estate planning. Includes an introduction to wills, trusts and estates, intestate succession, guardianships, will related documents, will drafting and executing, estate administration, probate related legal action, trusts and administration, and fiduciary duties.

*Offered: Fall*

**LAS 206 Criminal Law and Procedures I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101 or employment in a legal related field.*

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.

*Offered: Fall*

**LAS 207 Criminal Law and Procedures II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 206.*

Continuation of LAS 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.

*Offered: Spring*

**LAS 208 Domestic Relations and Family Law /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101 or employment in the legal or a related field.*

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.

*Offered: Spring*

**LAS 209 Bankruptcy Procedures /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101 or employment in the legal or a related field.*

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' roles.

*Offered: Fall*

**LAS 210 Administrative Law /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): LAS 101 and 103 or employment as a paralegal.*

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.

*Offered: Summer*

**LAS 210A Administrative Law: Employment /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): LAS 101 and 103 or employment as a paralegal.*

Concepts and procedures of employment law for paralegals. Includes an overview of employment law and regulations, and practical applications in employment law.

*Information:* LAS 210A, 210B, 210C, and 210D together constitute LAS 210.

*Offered: Summer*

**LAS 210B Administrative Law: Immigration /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): LAS 101 and 103 or employment as a paralegal.*

Concepts and procedures of immigration law for paralegals. Includes an overview of immigration law and regulations, and practical applications in employment law.

*Information:* LAS 210A, 210B, 210C, and 210D together constitute LAS 210.

*Offered: Summer*

**LAS 210C Administrative Law: Social Security /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): LAS 101 and 103 or employment as a paralegal.*

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.

*Information:* LAS 210A, 210B, 210C, and 210D together constitute LAS 210.

*Offered: Summer*

**LAS 210D Administrative Law: Environmental /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): LAS 101 and 103 or employment as a paralegal.*

Concepts and procedures of environmental law. Includes an overview of environmental laws and regulations, and practical applications in environmental law.

*Information:* LAS 210A, 210B, 210C, and 210D together constitute LAS 210.

*Offered: Summer*

**LAS 211 Legal Writing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 103, 202, WRT 101.*

Principles and techniques of legal writing. Includes writing style, editing and proofreading, legal analysis, legal brief types, and applications of legal writing for memorandum, litigation documents, correspondence, and transaction documents.

*Offered: Fall/Spring*

**LAS 212 Law Office Computerization /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): LAS 101 or concurrent enrollment, and CSA 101.*

Applications of computer software in the 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.

*Offered: Spring*

**LAS 213 Computer Assisted Legal Research /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* LAS 103 or equivalent research experience.

Computer assisted research systems. Includes historical development, full-text system: Westlaw, search techniques and display elements, databases, special services, and internet searching.

*Offered:* Fall/Spring

**LAS 215 Corporate Law Procedures /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* BUS 220 (or concurrent enrollment) or LAS 101 or employment in the legal or related field.

Procedures and document drafting for the formation of business entities. Includes introduction to agency law, non-corporate entities, business corporations, corporation changes, forms of corporations, financing a corporation, changes in corporate structure, and the role of the paralegal in corporate law.

*Offered:* Spring

**LAS 217 Real Estate Legal Procedures /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* LAS 101 or employment in the legal field or a Real Estate License.

Legal procedures and requirements in real estate transactions and litigation. Includes real estate principles and legal concepts, recording and constructive notice, and real property taxes. Also includes an analysis of real estate contracts/purchase agreements, escrows and closings, deeds, co-ownership, legal descriptions, leases, encumbrances, liens, and foreclosures.

*Information:* The Arizona Department of Real Estate will accept this course as satisfying 15 continuing education hours in the following categories (3 agency, 3 contract law, 3 fair housing, 3 real estate legal issues and 3 general real estate).

*Offered:* Fall/Spring

**LAS 290 Paralegal Internship /4 cr. hrs./16 periods (1 lec., 15 lab)**

*Prerequisite(s):* WRT 101, LAS 104, 202, and two LAS specialty electives. A minimum of 45 credit hours if completing the AAS Degree, or 27 credit hours if completing the certificate are required. Application and acceptance required.

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.

*Information:* Designed for students in their final semester of course work in the Paralegal Program.

*Information:* Enrollment and placement contingent upon earned grade point average in LAS courses.

*Offered:* Fall/Spring

**PHARMACY TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**PHT 170 Introduction to Pharmacy Technology /2 cr. hrs./2 periods (2 lec.)**

Overview of the role of pharmacy support personnel. Includes allied health professions, history and structure of pharmacy, and legal aspects of pharmacy. Also includes medical terminology emphasizing common medical roots, prefixes and suffixes, and pharmaceutical abbreviations.

*Offered:* Fall/Spring

**PHT 171/171LB Pharmaceutical Calculations /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* PHT 170 or concurrent enrollment.

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.

*Offered:* Fall

**PHT 172 Drug Therapy I /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* PHT 170 or concurrent enrollment.

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.

*Offered:* Fall

**PHT 174/174LB Pharmacy Operations /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* PHT 170 or concurrent enrollment, and PHT 171 or concurrent enrollment.

Technical aspects of drug distribution in both inpatient and outpatient settings. Includes basic pharmacy references, equipment and materials, non-sterile dosage forms, and inventory control. Also includes large and small scale compounding, packaging, and quality control.

*Offered:* Fall

**PHT 178/178LB Pharmacy Microcomputers /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* PHT 170 or concurrent enrollment.

Basic concepts of computer operation. Includes the Internet, computer hardware and software, and professional pharmacy applications in retail and hospital pharmacy. Also includes legal and ethical considerations, and future directions.

*Offered:* Spring

**PHT 180/180LB Sterile Products /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* PHT 171 or concurrent enrollment.

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.

*Offered:* Spring

**PHT 181 Interprofessional Relations in Pharmacy /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* PHT 170 concurrent enrollment or consent of instructor.

Overview of effective communication 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.

*Offered:* Spring

**PHT 182 Drug Therapy II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* PHT 170 or concurrent enrollment.

The relationship between anatomy and physiology, disease states, and pharmaceutical therapy. Includes origins, dosage forms, indications, actions, routes of administration and side effects of both prescription and non-prescription drugs used in diseases of the cardiovascular, circulatory, renal, endocrine, respiratory, digestive, reproductive, and integumentary systems.

*Offered:* Spring

**PHT 189 Pharmacy Technician Administration /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Completion of the certificate or consent of instructor.

Practical management techniques for pharmacy technician supervisors and managers. Includes building an organization from the beginning stages. Also includes managing and maintaining the organization.

*Offered:* Fall

**PHT 190LB Pharmacy Technician Internship /4 cr. hrs./16 periods (16 lab)**

*Prerequisite(s):* Completion of the core curriculum for the certificate.

On-site training in outpatient and inpatient pharmacy services under direct supervision of a designated pharmacist.

*Offered:* Summer

**PHT 197 Clinical Seminar /2 cr. hrs./2 periods (2 lec.)**

*Corequisite(s):* Concurrent enrollment in PHT 190.

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.

*Offered:* Summer

**PHILOSOPHY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**PHI 101 Introduction to philosophy /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 /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, ancient philosophical ideas about God, mind, and matter, medieval ideas, modern philosophers' ideas, and contemporary philosophical discussions.

*Offered: Fall/Spring/Summer*

**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/Spring/Summer*

**PHI 130 Introductory Studies in Ethics and Social Philosophy /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/Summer*

## PHYSICS

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**PHY 061 Problem Solving for Physics 121 /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in PHY 121.

Strategies and techniques used to solve problems encountered in an algebra based, introductory Physics course. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

*Will not be offered this year*

**PHY 062 Problem Solving for Physics 122 /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in PHY 122.

Strategies and techniques used to solve problems encountered in a second semester, algebra based, introductory Physics course. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

*Will not be offered this year*

**PHY 063 Problem Solving for Physics 210 /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in PHY 210.

Strategies and techniques used to solve problems encountered in a calculus based introductory mechanics course. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

*Will not be offered this year*

**PHY 064 Problem Solving for Physics 216 /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in PHY 216.

Strategies and techniques used to solve problems encountered in a calculus based introductory course in electricity and magnetism. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

*Will not be offered this year*

**PHY 065 Problem Solving for Physics 221 /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in PHY 221.

Strategies and techniques used to solve problems encountered in a calculus based introductory course in waves, heat and fluid. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

*Will not be offered this year*

**PHY 066 Problem Solving for Physics 230 /1 cr. hr./1 period (1 lec.)**

*Corequisite(s):* Concurrent enrollment in PHY 230.

Strategies and techniques used to solve problems encountered in a calculus based introduction to modern physics. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

*Will not be offered this year*

**PHY 080 Introduction to Conceptual Physics /1 cr. hr./1 period (1 lec.)**

Selected topics in conceptual physics. Includes fundamentals of conceptual physics, one dimensional kinematics, Newton's laws of motion (force), work and energy, light rays and reflection, and electric circuits.

*Will not be offered this year*

**PHY 101/101LB Technical Physics I /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* MAT 086.

Concepts of physics related to technician occupations. Includes state of matter, forces in water and other liquids, forces in air and other gases, forces in work and machines, concepts of motion, heat energy, psychometrics, electrical principles, and electromagnetic spectrum.

*Will not be offered this year*

**PHY 115/115LB Physical Science /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* High School algebra.

Basic concepts of mechanics, heat, light, sound, electricity and energy. Included are properties of matter, the atomic theory of matter, and discussion of the impact of modern physics on society.

*Will not be offered this year*

**PHY 121/121LB PHY 121IN Introductory Physics I /5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s):* High school algebra.

Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes mechanics and heat.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer*

**PHY 122/122LB PHY 122 IN Introductory Physics II /5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s):* PHY 121.

Continuation of PHY 121. Includes waves, electricity, waves, magnetism, optics, relativity, and modern physics.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring/Summer*

**PHY 195 Introduction to Research in Physics /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* Consent of instructor.

Introduction to the methods of research in physics. Includes scientific laboratory procedures, experimental design, scientific writing, scientific ethics, and current research in working laboratories.

*Offered: Fall/Spring*

**PHY 196 Independent Studies in Physics /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite(s):* Consent of instructor.

Independent studies and projects in physics and allied science fields. Content to be determined by conference between student and instructor.

*Information:* May be taken two times for a maximum of eight credit hours.

*Offered: Fall/Spring/Summer*

**PHY 210/210LB PHY 210IN Introductory Mechanics /5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s):* MAT 220 and high school physics.

Calculus-based introduction to mechanics for physics, engineering, and mathematics majors. Includes kinematics, dynamics, and conservation of energy, linear, and angular momentum.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring*

**PHY 216/216LB PHY 216IN Introductory Electricity and Magnetism /5 cr. hrs./7 periods (4 lec., 3 lab)**

*Prerequisite(s):* PHY 210, MAT 231.

Calculus-based introduction to electricity and magnetism for physics, mathematics, and engineering majors. Includes electric and magnetic field theory, Gauss's Law, potential theory, capacitance, circuit theory, Ampere's Law, Faraday's Law, and Maxwell's equations.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.

*Offered: Fall/Spring*



**PHY 221/221LB Introduction to Waves and Heat /4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s):* PHY 210, MAT 231.

Calculus-based introduction to waves and heat for physics, mathematics, and engineering majors. Includes fluid statics and dynamics, heat and thermodynamics, simple harmonic motion, wave theory, physical and geometric optics.

*Offered:* Fall/Spring**PHY 230 Introduction to Modern Physics /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* PHY 210 and 216, or PHY 221 and MAT 231.

Calculus-based introduction to modern physics from the theory of relativity to the origins of quantum mechanics. Includes the classical theory of relativity, inertial reference frames, the special theory of relativity, and relativistic kinematics and dynamics. Also includes the quantization of energy, wave particle duality, early quantum theory, atomic physics and the hydrogen atom, nuclear, and elementary particle physics.

*Offered:* Fall/Spring**PHY 295LB Independent Research in Physics /1-4 cr. hrs./3-12 periods (3-12 lab)***Prerequisite(s):* One semester of physics and consent of instructor.

Experience in scientific laboratory research. Specific content to be determined by student and instructor.

*Information:* May be taken three times for a maximum of twelve credit hours.*Offered:* Fall/Spring/Summer**POLITICAL SCIENCE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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/Summer**POS 105 Arizona Constitution /1 cr. hr./1 period (1 lec.)**

Fundamental principles of the Arizona Constitution of 1910. Includes importance of state constitutions, legislative branch and direct democracy, Arizona plural executive, judicial branch, and local governments in Arizona. Fulfills the Arizona teacher certification requirement for state constitutions.

*Offered:* Fall/Spring/Summer**POS 110 American National Government and Politics /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, public opinion and fundamental values. Also includes political institutions, and institutions of government, economic and social policy-making and American foreign policy and interdependence.

*Information:* Students should not enroll for both POS 110 and POS 220. If POS 110 is a requirement for a student who has already taken POS 220, the student should see a full-time POS faculty member or an advisor who will consult a full-time POS faculty member.*Offered:* Fall/Spring/Summer**POS 120 Introduction to International Relations /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 130 American State and Local Governments and Politics /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, interest articulation and aggregation, institutions and processes of state and local governments, tribal governments, and state and local policy-making.

*Information:* Students should not enroll for both POS 130 and POS 220 except on the advice of a full-time POS faculty member.*Offered:* Fall/Spring/Summer**POS 140 Introduction to Comparative Politics /3 cr. hrs./3 periods (3 lec.)**

Basic concepts and substance of comparing political systems. Includes methods of comparative political analysis, politics and the socio-cultural environment, public authority and political power, individuals, cultural diversity, and state, political institutions, governmental institutions, and political change.

*Offered:* Fall/Spring**POS 160 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 196 Independent Study in Political Science /2-4 cr. hrs./2-4 periods (2-4 lec.) variable workload***Prerequisite(s):* Consent of instructor.

Independent readings or special projects in political science. Content to be determined by conference between student and instructor.

*Offered:* Fall/Spring**POS 220 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:* Satisfies the requirement for teacher certification.*Information:* Students should not enroll for both POS 220 and POS 110, or POS 220 and POS 130. If POS 220 is a requirement for a student who has already taken POS 110, the student should take POS 130 which, together with POS 110, meets the same requirement. If POS 220 is a requirement for a student who has already taken POS 130, the student should take POS 110.*Offered:* Fall/Spring/Summer**POS 290 Political Science Internship /3 cr. hrs./15 periods (15 lab)***Prerequisite(s):* WRT 101 and 6 credit hours in political science.

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.

*Offered:* Fall/Spring/Summer**PORTUGUESE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**POR 053 Social and Cultural Portuguese: Music /2 cr. hrs./2 periods (2 lec.)**

Listening and discussing Brazilian songs from the earlier decades to the present. Includes origins of Brazilian music, Brazilian rhythms, instruments, and major composers. Also includes contributions brought by the Portuguese, the Africans, and the indigenous population of Brazil.

*Information:* Prior knowledge of Portuguese is welcome, but not required.*Will not be offered this year***POR 101 Elementary Portuguese I /4 cr. hrs./4 periods (4 lec.)**

Basic linguistic skills of the Portuguese language. Includes proficiency in speaking, reading, writing and understanding Portuguese. Also includes an emphasis on Portuguese cultural traditions.

*Offered:* Fall**POR 102 Elementary Portuguese II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s):* POR 101.

Continuation of POR 101. Includes increased proficiency in listening, speaking, reading and writing. Also includes continued study of cultural traditions of Portugal and Brazil.

*Offered:* Spring**POR 201 Intermediate Portuguese I /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s):* POR 102.

Continuation of POR 102. Includes selection of grammar structures, literary, political, and social vocabulary, selection of literary works by period, and cultural and stylistic differences.

*Will not be offered this year*

**POR 202 Intermediate Portuguese II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s):* POR 201.

Continuation of POR 201. Includes additional selection of grammar structures, additional literary, political, and social readings, additional selection of literacy works by period, and additional cultural and stylistic differences.

*Will not be offered this year***POSTAL SERVICE MANAGEMENT**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**PSM 140 Mail Processing /3 cr. hrs./3 periods (3 lec.)**

Principles and practices of mail processing. Includes mail classification and rates, service standards, postal terminology, mail processing functions, distribution systems, objectives, responsibilities, mail preparation, manual distribution, revenue protection and bulk mail centers.

*Offered: Spring***PSM 210 Mailroom Procedures and Mailing Techniques /3 cr. hrs./3 periods (3 lec.)**

In-depth study of business mailroom procedures and techniques. Includes mailroom setup, equipment, personnel administration, time management and U.S. Postal Service requirements for all classes of mail.

*Information:* Prepares student for employment in a business mailroom.*Offered: Fall***PSM 260 Postal Problems Analysis /3 cr. hrs./3 periods (3 lec.)**

Analysis and solution of actual postal problems using systematic approaches. Includes problem identification, determination and analysis of dimensions, probable causes, adverse consequences, alternative solutions, and specification and defense of best solution.

*Offered: Spring***PROCESS TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**PRO 106 Painting and Coating of Metals /4 cr. hrs./8 periods (2 lec., 6 lab)**

Fundamentals of painting and coating of metals. Includes paint composition, properties, types, surface preparation, spraying processes, powder coating, film defects, testing, removing paint, automated painting, masking, and environmental regulations.

*Offered: Spring***PRODUCTION INVENTORY MANAGEMENT**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**PIM 150 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)**

In-depth study of the logistical function. Includes customer service standards, inventory control concepts, transportation methods, order processing systems, warehousing location analysis, industrial packaging, and materials handling.

*Information:* Same as MKT 150.*Offered: Fall***PIM 210 Production Control /3 cr. hrs./3 periods (3 lec.)**

Principles of production activity control and capacity management. Includes scheduling and controlling the shop floor, capacity requirements planning, resource requirements planning and closed loop Material Requirements Planning (MRP).

*Information:* Candidates for APICS Production Activity Control certification examination will find this course valuable.*Offered: Spring***PROFESSIONAL FLIGHT TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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: Fall/Spring***PFT 122 Meteorology II /1 cr. hr./1 period (1 lec.)***Prerequisite(s):* Consent of instructor.

Continuation of PFT 101. Includes an in-depth study of weather elements, weather hazards, aviation weather reports, and forecasts.

*Offered: Fall/Spring***PFT 130 Stage Three Commercial Ground School /5 cr. hrs./5 periods (5 lec.)***Prerequisite(s):* Consent of instructor.

Preparatory course for Federal Aviation Administration (FAA) Commercial Pilot Certification. Includes the information required to pass the FAA written test for the Commercial Pilot Certificate.

*Offered: Fall/Spring***PFT 204 Stage Four Commercial Pilot (Instrument) Ground School /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s):* PFT 101 and consent of instructor.

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, attitude instrument flight, flight physiology, and final examination.

*Offered: Fall/Spring***PFT 230 Flight Instructor Fundamentals of Instruction /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* PFT 130, 204, or consent of instructor.

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.

*Offered: Fall/Spring***PFT 231 Flight Instructor Airplane Ground School /5 cr. hrs./5 periods (5 lec.)***Prerequisite(s):* Possession of an Airplane Flight Instructor certificate and instrument rating.

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.

*Offered: Fall/Spring***PFT 250 Flight Instructor Instrument Airplane Ground School /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* Possession of an Airplane Flight Instructor certificate and instrument rating.

Theory and procedures associated with the ground school requirements to attain Federal Aviation Administration Flight Instructor - Instrument Airplane certification. Includes the items required by the FAA to obtain an Instrument Flight Rating addition to a Flight Instructor Certificate and a requirement to teach all areas required by the FAA to obtain an Instrument Flight Instructor Airplane Rating addition to a Flight Instructor Certificate.

*Offered: Fall/Spring***PUBLIC ADMINISTRATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**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***PAD 204 Introduction to the Analysis of Data for Decision Making /3 cr. hrs./3 periods (3 lec.)**

Informal and exploratory approaches to the analysis of empirical data in a public administration context. Includes methods of decision analysis, modeling decisions, modeling uncertainty, and modeling preferences.

*Will not be offered this year***PAD 221 Health, Human Services, and Public Management /3 cr. hrs./3 periods (3 lec.)**

Survey of significant issues in health care, aging, social security, public planning and decision-making. Includes American health services, American human services, public management in America, policy-making and implementation, data use and interpretation in public management, and practical cases in health and human services.

*Offered: Spring*

## PSYCHOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

### PSY 100A Psychology I /3 cr. hrs./3 periods (3 lec.)

Survey of psychology. Includes definition of psychology, history of psychology, research methods and critical thinking, major stages in child development, major stages in life span development, intelligence, major personality theories, psychological disorders, therapeutic approaches, and social psychology research.

*Offered: Fall / Spring / Summer*

### PSY 100B Psychology II /3 cr. hrs./3 periods (3 lec.)

Topics in psychology. Includes definition of psychology, history of psychology, biological basis of behavior, sensory process, receiving the world, states of consciousness, conditioning and learning, memory process, motivation and emotions, role of health psychologists in lessening behavioral risks to health, role of stress in our lives, and gender identity and sexuality.

*Offered: Fall / Spring / Summer*

### PSY 101 Introduction to Psychology /4 cr. hrs./4 periods (4 lec.)

*Recommended: Twelfth grade reading level or higher.*

Survey of general psychology. Includes a definition of psychology, history of psychology, research methods and critical thinking, biological basis of behavior, sensory process, receiving the world, states of consciousness, conditioning and learning, memory process, motivation and emotions, role of health psychologists, role of stress, major stages in child and life span development, gender identity and sexuality, intelligence, personality theories, psychological disorders, therapeutic approaches, social psychology research, and gender identity and sexuality.

*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, self and personality, cross-cultural research methods, enculturation, socialization, and development, cultural influences on organization and the world of work, culture and intergroup relations, culture and social behavior, culture and basic psychological processes, culture and gender, culture and health, diversity of human emotion, culture and language, culture and communication, and cultural diversity.

*Offered: Fall / Spring / Summer*

### PSY 200 Industrial, Organizational, and Business Psychology /3 cr. hrs./3 periods (3 lec.)

Introduction to the application of psychological theory and practice to the work place. Includes employment laws and policies, leadership models and characteristics, and organizational structures. Also includes employment-related stress theories and interventions, and designing effective work environments.

*Offered: Fall / Spring / Summer*

### PSY 210 Introduction to Biopsychology /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100B or 101.*

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.

*Offered: Fall / Spring / Summer*

### PSY 214 Abnormal Psychology /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A or 101 or consent of instructor.*

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.

*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.

*Information:* Same as SOC 215.

*Offered: Fall / Spring / Summer*

### PSY 216 Psychology of Gender /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A or 101 or consent of instructor.*

Biological and social explanations of gender development and behavior. Includes consequences of gender related attitudes and expectations and implications of human liberation.

*Offered: Fall / Spring / Summer*

### PSY 218 Health Psychology /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A or 101 or consent of instructor.*

Overview of the area 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.

*Offered: Fall / Spring / Summer*

### PSY 220 The Psychology of Death and Loss /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A or 101.*

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.

*Offered: Fall*

### PSY 224 Investigating Paranormal Psychology /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A and 100B or 101 or consent of instructor.*

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.

*Offered: Fall*

### PSY 230 Psychological Measurements and Statistics /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A, and 100B, or PSY 101, and MAT 122.*

Measurement, quantitative description and statistical inference as applied to psychological variables. Includes scientific research and statistics, descriptive statistics, inferential statistics, correlation and linear regression, and non-parametric tests.

*Information:* Designed for students planning to major or minor in psychology.

*Offered: Fall / Spring / Summer*

### PSY 250 Introduction to Social Psychology /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A or 101.*

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.

*Offered: Fall / Spring / Summer*

### PSY 254 Psychology of Love and Compassion /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A or 101.*

Introduction to theory and research on the psychology of love and caring. Includes applications to mental, physical and spiritual health.

*Offered: Fall / Spring*

### PSY 265 Normal Personality /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s): PSY 100A or 101.*

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.

*Offered: Fall / Spring / Summer*

*continued*



**PSY 270 Meditation /3 cr. hrs./3 periods (3 lec.)**

Principles, techniques, and practice of meditation. Includes information and experiential activities to increase understanding of physical, mental, emotional, social, and spiritual factors in meditation and stress reduction.

*Information:* Same as HUM 270.

*Offered:* Fall / Spring / Summer

**PSY 271 Sport Psychology/3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* PSY 101 or PSY 100A.

Examination of psychological factors that influence sport performance and coaching behaviors and the psychological effects that sport and exercise involvement have on the participant. Includes an introduction to sport psychology and sport history, psychological principles of behavioral development and control, social psychological dimensions of sport and exercise, personality assessment, the study of special athletic populations, coaching roles and behavior, and exercise psychology.

*Offered:* Fall / Spring / Summer

**PSY 273 Psychology of Excellence /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* PSY 101 or 100A.

Psychological theories, research and intervention strategies for enhancing performance in diverse life and work settings. Includes time management, principles of self-regulation, enhancing memory and work habits, setting goals and dealing with stress. Also includes cognitive theories and approaches to self control, problem solving and decision making, mental imagery, attentional focus, effective communication, and conflict resolution.

*Offered:* Will not be offered this year

**PSY 289 Research Methods /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* PSY 230.

Introduction to scientific methodologies used in psychological research. Includes experience in using a range of psychological research methods for students planning to major or minor in psychology.

*Offered:* Fall / Spring / Summer

**PSY 289A Research Methods /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* PSY 230.

Lecture class on scientific methodologies used in psychological research. Includes a selection of psychological research methods.

*Information:* Designed for students planning to major or minor in psychology.

*Information:* PSY 289A and 289B together constitute PSY 289.

*Offered:* Fall / Spring / Summer

**PSY 289B Laboratory for Research Methods /1 cr. hr./3 periods (3 lab)**

*Prerequisite(s):* PSY 289A or concurrent enrollment.

Laboratory on experimental research and report writing for PSY 289. Includes conducting, analyzing and writing reports on original research.

*Information:* PSY 289A and 289B together constitute PSY 289.

*Offered:* Fall / Spring / Summer

**PSY 290 Social Psychology Practicum /1-6 cr. hrs./5-30 periods (5-30 lab)**

*Prerequisite(s):* PSY 100A or 101.

*Recommended:* Consult instructor for alternative prerequisites.

Familiarization with specific areas of social psychology. Includes pertinent research, directed observation, and personal participation in relevant experimental or natural settings.

*Information:* May be taken two times for a maximum of six credit hours.

*Offered:* Fall / Spring / Summer

**PSY 296 Individual Studies in Psychology /1-6 cr. hrs./1-6 periods (1-6 lec.)**

*Prerequisite(s):* PSY 100A or 101 or consent of instructor.

Exploration of special interest areas. Content to be determined by student and facilitator-instructor.

*Information:* May be taken two times for a maximum of six credit hours.

*Offered:* Fall / Spring / Summer



## PUBLIC SAFETY COMMUNICATIONS

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### PSC 120 Public Safety Communications I /3 cr. hrs./3 periods (3 lec.)

Skills and concepts of Public Safety telecommunications. Includes an historical perspective, interpersonal communications skills, public access, organizational structure, and current technology.

*Will not be offered this year*

### PSC 121 Public Safety Communications II /3 cr. hrs. /3 periods (3 lec.)

Continuation of PSC 120. Includes organizational structure, interpersonal communication skills, stress management, hazardous materials, and basic and advanced life support.

*Will not be offered this year*

### PSC 130 Communication Center Operations I /3 cr. hrs. /3 periods (3 lec.)

Performance skills and concepts of a public safety telecommunications operation center. Includes organizational structure, skills training, technology, liability, interpersonal communications, customer service, and computer databases.

*Will not be offered this year*

### PSC 131 Communication Center Operations II /3 cr. hrs. /3 periods (3 lec.)

Continuation of PSC 130. Includes an historical perspective, interpersonal communications skills, public access, organizational structure, standard operating procedures, current technology, and the use of computers.

*Will not be offered this year*

### PSC 190 Field Experience /1-4 cr. hrs. /5-20 periods (5-20 lab)

*Prerequisite(s):* Consent of instructor.

Field experience providing the opportunity to apply course work in a planned and supervised public safety communications setting.

*Will not be offered this year*

### PSC 199 Co-op Related Class in PSC /1 cr. hr. /1 period (1 lec.)

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

### PSC 199WK Co-op Work in PSC /1-8 cr. hrs. /5-40 periods (5-40 lab)

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Will not be offered this year*

## QUALITY CONTROL TECHNOLOGY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### QCT 101 Quality Control I /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s):* MAT 092 or satisfactory score on the math assessment test. Introduction to the concepts of quality control. Includes basic statistics, use of control charts for attributes and variables, linear correlation, and assigned experiments. Also includes specialized concepts of reliability and maintainability.

*Offered: Fall*

### QCT 102 Quality Control II /3 cr. hrs./3 periods (3 lec.)

*Prerequisite(s):* QCT 101.

Introduction to the concepts of quality control management. Includes quality department organization, quality systems and procedures, procurement quality control, standards and calibration, inspection principles and practices, internal quality audits and the economics of quality control.

*Offered: Spring*

## RADIOLOGIC TECHNOLOGY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

### RAD 170/170LB Medical Imaging Fundamentals /3 cr. hrs./5 periods (2 lec., 3 lab)

*Prerequisite(s):* Admission into program.

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.

*Offered: Summer*

### RAD 171/171LB Radiographic Positioning I /4 cr. hrs./ 6 periods (3 lec., 3 lab)

*Prerequisite(s):* RAD 170 and consent of program coordinator.

Overview of standard radiographic procedures to perform standard radiographic procedures, along with the application to special studies. Laboratory experience will be used to compliment the didactic portion.

Includes standard terms, general considerations, upper extremities, lower extremities, pelvis, hips, and SI joints, ribs boney thorax, vertebral column, and patient assessment.

*Offered: Fall*

### RAD 172/172LB Medical Imaging Technology I /4 cr. hrs./6 periods (3 lec., 3 lab)

*Prerequisite(s):* RAD 170 and consent of program coordinator.

Introduction to radiographic image production and evaluation. Includes radiographic imaging orientation, exposure, protection, image quality, and film processing. Also includes formulating exposure techniques, quality assurance, and sensitometry.

*Offered: Fall*

### RAD 173LB Clinical Education I /4 cr. hrs./16 periods (16 lab)

*Prerequisite(s):* RAD 170 and consent of program coordinator.

Application of general radiographic procedures in a clinical education center under the supervision of a certified radiographer. Includes hospital and department orientation, radiographic equipment and supplies, exam protocols, routine radiographic examinations, emergency, surgical, and portable equipment, and routine procedures.

*Offered: Fall*

### RAD 174/174LB Radiographic Positioning II /4 cr. hrs./6 periods (3 lec., 3 lab)

*Prerequisite(s):* RAD 171, 172, 173.

Radiographic positioning and fluoroscopic procedures of the upper and lower gastrointestinal tract. Includes urinary system, pharmacodynamics of radiopaque contrast media, intravenous drug administration (venipuncture), digestive system, and biliary system.

*Offered: Spring*

### RAD 175/175LB Medical Imaging Technology II /4 cr. hrs./6 periods (3 lec., 3 lab)

*Prerequisite(s):* RAD 171, 172, 173.

Principles of x-ray production. Includes tomography, matter and the atom, ionizing radiation, basic electricity, and magnetism and electromagnetism. Also includes voltage and current, x-ray generators, diagnostic radiographic systems, and x-ray tubes.

*Offered: Spring*

### RAD 176LB Clinical Education II /6 cr. hrs./24 periods (24 lab)

*Prerequisite(s):* RAD 171, 172, 173.

Continuation of RAD 173. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes routine and fluoroscopic equipment and procedures, contrast media policies and protocols, I.V. administration, routine and special examinations, and surgical and portable procedures.

*Offered: Spring*

### RAD 177LB Clinical Education III /9 cr. hrs./36 periods (36 lab)

*Prerequisite(s):* RAD 174, 175, 176.

Continuation of RAD 176LB. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes diagnostic and fluoroscopic equipment and procedures, contrast media policies and protocols, I.V. administration, routine and special examinations, and surgical and portable procedures.

*Offered: Summer*

### RAD 181/181LB Radiographic Positioning III /4 cr. hrs./6 periods (3 lec., 3 lab)

*Prerequisite(s):* RAD 177.

Radiographic positioning of the skull, patient care, and radiation biology. Includes radiographic critique and anatomy.

*Offered: Fall*

### RAD 182/182LB Medical Imaging Technology III /4 cr. hrs./6 periods (3 lec., 3 lab)

*Prerequisite:* RAD 170, 172, 173, 175, 176,s 177

Specialized and advanced medical imaging systems. Includes Nuclear Medicine technology, Ultrasound technology, radiation therapy, image intensification, mobile radiography special, and digital medical imaging. Also includes computed tomographic scanning, Magnetic Resonance Imaging, and digital imaging.

*Offered: Fall*

### RAD 183LB Clinical Education IV /6 cr. hrs./24 periods (24 lab)

*Prerequisite(s):* RAD 177.

Continuation of RAD 177. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes application of special radiographic positioning of the skeletal system, fluoroscopy, surgery, emergency room, GU and GI systems, and skull and facial bones.

*Offered: Fall*

**RAD 184/184LB Radiographic Positioning IV /4 cr. hrs./6 periods (3 lec., 3 lab)***Prerequisite(s): RAD 181, 182, 183.*

Routine positioning and procedural considerations for orthoroentgenography, myelography, mammography, pediatric radiology, angiography and trauma examinations. Includes patient care and management, infection control, medical emergencies, routine and special positioning, and procedural protocol.

*Offered: Spring***RAD 185 Clinical Seminar /1 cr. hr./1 period (1 lec.)***Prerequisite(s): RAD 181, 182, 183.*

Presentations on radiographic procedures. Includes image production, patient care, equipment operation, and radiation protection.

*Offered: Spring***RAD 186LB Clinical Education V /6 cr. hrs./24 periods (24 lab)***Prerequisite(s): RAD 181, 182, 183.*

Continuation of RAD 183. Application of general radiographic procedures in a Clinical Education Center under the supervision of a certified radiographer. Includes advanced imaging procedures, Computer Tomographic Scanning, Magnetic Resonance Imaging, and radiographic positioning of the skull.

*Offered: Spring***RAD 210 Sectional Anatomy of the Head and Neck /1 cr. hr./1 period (1 lec.)***Prerequisite(s): American Registry of Radiologic Technologists certification or permission of instructor.*

Three dimensional anatomy presented in sagittal, transverse, and coronal planes of the head and neck. Includes structure identification and anatomic relationships of the bones, organs, muscles, nerves, and cavities.

*Will not be offered this year***RAD 211 Sectional Anatomy of the Abdomen /1 cr. hr./1 period (1 lec.)***Prerequisite(s): American Registry of Radiologic Technologists certification or permission of instructor.*

Three dimensional anatomy presented in sagittal, transverse, and coronal planes of the abdomen. Includes structure identification and anatomic relationships of the bones, organs, muscles, nerves, and cavities.

*Will not be offered this year***RAD 212 Sectional Anatomy of the Thorax /1 cr. hr./1 period (1 lec.)***Prerequisite(s): American Registry or Radiologic Technologists certification or consent of instructor.*

Three dimensional anatomy presented in sagittal, and transverse sections of the thorax. Includes structure identification and anatomic relationships of the bones, organs, and cavities.

*Will not be offered this year***RAD 213 Sectional Anatomy of the Vertebral Column and Spinal Cord /1 cr. hr./1 period (1 lec.)**

Three dimensional anatomy presented in transverse, sagittal, and coronal planes of the vertebral column and spinal cord. Includes structure identification and anatomic relationships of the vertebrae and spinal cord including discs, ligaments, muscles and nerves.

*Information:* Required American Registry of Radiologic Technologists certification or permission of instructor.*Will not be offered this year***RAD 214 Sectional Anatomy Pathology /1 cr. hr./1 period (1 lec.)***Prerequisite(s): ARRT Certified*

Discussion of pathophysiology and the radiographic signs of various diseases as seen on CT and MR case studies of the human body. Includes pathologic considerations for the head/neck, thorax, abdomen, pelvis, spine, and joints.

*Will not be offered this year***READING**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**REA 068 Techniques of Vocabulary /2 cr. hr./2 period (2 lec.)**

Introduction to five basic strategies for vocabulary development. Includes use of context clues, word parts, word cards, the dictionary, and imaging techniques.

*Information:* May be taken four times for a maximum of eight credit hours.*Offered: Fall/Spring/Summer***REA 071 Reading Fundamentals /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): Satisfactory score on reading assessment test.*

Development of fundamental reading strategies. Includes extensive development of word analysis, vocabulary, information literacy, and reading strategies necessary to assure successful comprehension at the literal and interpretive levels.

*Information:* Designed for persons who need an intensive review of the basic reading strategies.*Offered: Fall/Spring/Summer***REA 073 Understanding What You Read /2 cr. hrs./2 periods (2 lec.)**

Overview of methods and techniques from reading material. Includes literal comprehension skills, inferential comprehension skills, and comprehension strategies.

*Information:* May be taken two times for a maximum of four credit hours.*Offered: Fall/Spring/Summer***REA 075 Spelling /2 cr. hr./2 period (2 lec.)**

Development of strategies for improving spelling. Includes basics of the English spelling system and spelling rules.

*Offered: Fall/Spring/Summer***REA 077 Study Skills /2 cr. hrs./2 periods (2 lec.)**

Development of study skill strategies. Includes instruction and application in note taking, memory and using text structure for better understanding. Also includes organizational techniques, graphic literacy and techniques for learning textbook material.

*Information:* May be taken four times for a maximum of eight credit hours.*Will not be offered this year***REA 078 Test-Taking Techniques /1 cr. hr./1 period (1 lec.)**

Techniques of preparing for and taking various types of tests as found in a college setting.

**REA 081 Reading Improvement I /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): Successful completion of REA 071 with grade of C or better, satisfactory score on reading assessment test or instructor recommendation.*

Improvement of basic reading strategies. Includes 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 to improve strategies in order to increase their success in college.*Offered: Fall/Spring/Summer***REA 091 Reading Improvement II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): Successful completion of REA 081 with grade of C or better, satisfactory score on reading assessment test, or instructor recommendation.*

Development of reading strategies. Includes vocabulary comprehension, study strategies, metacognition, information literacy, and community of readers.

*Offered: Fall/Spring/Summer***REA 112 Critical Reading /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): REA 091 or placement through reading assessment.*

Development of college reading strategies. Includes comprehension strategies at the college level, critical reading and thinking, reading rate, and advanced study strategies. Also includes vocabulary development.

*Offered: Fall/Spring/Summer***REA 125 Speed Reading /2 cr. hrs./2 periods (2 lec.)***Prerequisite(s): REA 112 or satisfactory score on the college reading assessment test.*

Improvement of reading rate. Includes reading and study habits, visual perception, rate and flexibility, and comprehension.

*Offered: Fall/Spring/Summer***REAL ESTATE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**RLS 101 Introduction to Real Estate Principles /3 cr. hrs./3 periods (3 lec.)**

Introduction to the broad field of real estate. Includes the principles of the nature and description of real estate; rights and interests in land/ acquisition and transfer of title; different kinds of ownership, title records and contracts; landlord and tenant relationships; and real estate brokerage. The Arizona Department of Real Estate will accept this course as satisfying forty-five (45) of the ninety (90) hour pre-licensing educational requirements.

*Offered: Fall*

**RLS 105 Principles of Real Estate/License Preparation /6 cr. hrs./ 6 periods (6 lec.)**

Introduction to real estate, including associated rules and regulations. The Arizona Department of Real Estate accepts this course as satisfying the 90 hour pre-licensing educational requirements.

Information: RLS 105 covers the same material as RLS 101, but more in-depth.

*Offered:* Fall/Spring/Summer

**RLS 202 Real Estate Appraisals /3 cr. hrs./3 periods (3 lec.)**

Basic principles and practical application of real estate appraisals. Includes real property, markets, fee simple and partial interests, data, neighborhoods and districts, building, highest and best use, cost approach, sales comparison approach, income capitalization approach, and appraisal report.

*Offered:* Fall

**RLS 205 Real Estate Finance /3 cr. hrs./3 periods (3 lec.)**

Overview of real estate finance from the viewpoint of the home mortgage loan officer. Includes factors affecting the mortgage market, sources of mortgage funds and lending criteria, secondary mortgage market, Federal Housing Administration, Veterans Administration, other government programs, types of mortgages available, legal instruments and procedures, mathematical calculations, loan processing and closing, default and disclosure, other financing, real estate taxation, and careers in real estate finance.

*Offered:* Fall/Spring

**RLS 252 Advanced Appraisal Techniques /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RLS 202 or consent of instructor.

Analysis of data on income-producing properties. Includes rationale for income capitalization approach, income expectancy, relationship of income and value, analysis of market evidence, direct and yield capitalization, mathematics of finance, mortgage and equity contributions, mortgage-equity capitalization, discounted cash flow analysis, and critique of the internal rate of return.

*Offered:* Spring

**RECORD AND INFORMATION MANAGEMENT**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**RIM 121 Introduction to Health Information Management /2 cr. hrs./2 periods (2 lec.)**

Overview of organization and analysis of the health record. Includes health record, health record systems, ancillary department relationships, and accreditation standards.

*Offered:* Fall/Spring

**RIM 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 and field trip(s).

*Offered:* Fall/Spring

**RIM 132A Records Management: Filing Systems A /1 cr. hr./1 period (1 lec.)**

Principles and procedures of filing systems. Includes rules for indexing, coding, and filing, and cross references.

Information: RIM 132A, 132B, and 132C together constitute RIM 132.

*Will not be offered this year*

**RIM 132B Records Management: Filing Systems B /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 132A.

Continuation of RIM 132A. Includes filing systems, and advantages and disadvantages of each filing system.

Information: RIM 132A, 132B, and 132C together constitute RIM 132.

*Will not be offered this year*

**RIM 132C Records Management: Filing Systems C /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 132B.

Continuation of RIM 132B. Includes file maintenance and management, and simulations and field trip(s).

Information: RIM 132A, 132B, and 132C together constitute RIM 132.

*Will not be offered this year*

**RIM 133 Records Management: Development of a Program / 3 cr. hrs./3 periods (3 lec.)**

Principles of file management from creation to final disposition. Includes records information management program development, technology in records information management, related records information management functions, and inactive records information management.

*Offered:* Fall/Spring

**RIM 221 Medical/Health Record Coding /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): OAP 262, 263, RIM 121

Recommendation: Experience in the medical field may replace the prerequisite.

Overview of coding classification systems. Includes terminology, principles and components of coding systems, codes for disease, condition, operations, and nonsurgical procedures, information from health records, and coding for the highest specificity.

**Offered:** Fall/Spring **RIM 231 Record Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RIM 133.

Forms management, micrographics, and automated retrieval as a part of records management. Includes establishing a forms program, building forms control files, warehousing, inventory control, and distribution, forms analysis, form design and construction, the photographic process, equipment and supplies, indexing systems, fundamental consideration, micrographics design, non-computerized storage and retrieval systems, computer-assisted retrieval systems, maintenance of information on magnetic media and optical disk, and new developments in technology.

*Offered:* Fall/Spring

**RIM 231A Records Management: Forms Management /1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): RIM 133.

Forms management as a part of records management. Includes establishing a forms program, building forms control files, warehousing, inventory control, and distribution, forms analysis, and form design and construction.

Information: RIM 231A, 231B, and 231C together constitute RIM 231.

*Will not be offered this year*

**RIM 231B Records Management: Micrographics /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 133.

Micrographics as a part of records management. Includes the photographic process, equipment and supplies, indexing systems, fundamental consideration, and micrographics design.

Information: RIM 231A, 231B, and 231C together constitute RIM 231.

*Will not be offered this year*

**RIM 231C Records Management: Automated Retrieval /1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): RIM 133.

Automated retrieval as a part of records management. Includes non-computerized storage and retrieval systems, computer-assisted retrieval systems, maintenance of information on magnetic media and optical disk, and new developments in technology.

Information: RIM 231A, 231B, and 231C together constitute RIM 231.

*Will not be offered this year*

**RIM 232 Records Management: Supervision /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RIM 133.

Practical approach to office organization and administrative management. Includes management of administrative services, physical resources, human resources, and systems and procedures.

*Offered:* Fall/Spring

**RELIGION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**REL 119 Western Religions /3 cr. hrs./3 periods (3 lec.)**

Introduction to Judaism, Christianity, and Islam. Includes nature of religious belief, development of Judaism, teachings of Judaism, festivals and rituals of Judaism, development of Christianity, teachings 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

**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 (movies, television, music, news, advertising, and recreation).

Offered: Fall/Spring/Summer

**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/Summer

**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 233 Early Christianity /3 cr. hrs./3 periods (3 lec.)**

History and selected writings of the first three hundred years of Christianity. Includes the world of early Christianity, writings of major Church Fathers, early Christian literature, and Christianity in the early Fourth Century.

*Will not be offered this year*

**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 Muhammed, basic tenets and practices of Islam, origin and development of Sufism, and historical and political development of Islam from Muhammad to the present.

Offered: Spring

**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: Fall

**REL 275 Native American Worldviews /3 cr. hrs./3 periods (3 lec.)**

Native American religions surveying concepts of reality, morality, ethics, and the environment. Includes concept of worldview, traditional Native American religious systems, Native American religions in a changing world, and future of Native American religious thought.

*Will not be offered this year*

## RESERVE OFFICERS TRAINING CORPS — ROTC — AIR FORCE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**MLA 100 Foundations of the Air Force I /2 cr. hrs./2 periods (2 lec.)**

First Year General Military Course concepts Survey of the doctrine, mission, and organization of the United States Air Force (USAF); strategic offensive and defensive forces; United States (U.S.) general purpose and aerospace support forces.

Information: United States Air Force Officers Training Corps (AFROTC) Cadets must attend a Leadership Lab.

Information: Course offered in cooperation with the University of Arizona.

Offered: Fall/Spring

**MLA 101 Foundations of the Air Force II /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); strategic offensive and defensive forces; United States (U.S.) general purpose and aerospace support forces.

Information: United States Air Force Officers Training Corps (AFROTC) Cadets must attend a Leadership Lab.

Information: Course offered in cooperation with the University of Arizona.

Offered: Fall/Spring

**MLA 200 Airpower History I /2 cr. hrs./2 periods (2 lec.)**

Second Year General Military Concept Survey of the development of aviation from the advent of the air age to the present, with emphasis on military aviation and its relationship with political and economic aspects of historical world situations.

Information: United States Air Force Reserve Officer Training Corps (AFROTC) Cadets must attend a Leadership lab.

Information: Course offered in cooperation with the University of Arizona.

Offered: Fall/Spring

**MLA 201 Airpower History II /2 cr. hrs./2 periods (2 lec.)**

Second Year General Military Concept Survey of the development of aviation from the advent of the air age to the present, with emphasis on military aviation and its relationship with political and economic aspects of historical world situations.

Information: United States Air Force Reserve Officer Training Corps (AFROTC) Cadets must attend a Leadership lab.

Information: Course offered in cooperation with the University of Arizona.

Offered: Fall/Spring

## RESERVE OFFICERS TRAINING CORPS — ROTC — NAVY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**NSP 100 Naval Laboratory I /1 cr. hr./2 periods (2 lab)**

Various topics such as drill and ceremonies, physical fitness, cruise preparation, sail training, safety awareness, personal finances, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice.

Information: Acceptance into the Navy ROTC program at the University of Arizona.

Offered: Fall/Spring

**NSP 101 Introduction to Naval Science /3 cr. hrs./3 periods (3 lec.)**

Introduction to naval profession and to concepts of seapower, with emphasis on mission, organization, and warfare components of the Navy and Marine Corps; naval courtesy and customs, military justice, shipboard damage control and safety.

Information: Course offered in cooperation with the University of Arizona.

Offered: Fall/Spring

**NSP 102 Naval Ship Systems I /3 cr. hrs./3 periods (3 lec.)**

Ship characteristics and types including ship design, hydrodynamic forces, stability, compartmentation, propulsion, electrical and auxiliary systems, interior communications, ship control, and damage control; basic concepts of the theory and design of steam, gas turbine, nuclear propulsion.

Information: Course offered in cooperation with the University of Arizona.

*Will not be offered this year*

**NSP 200 Naval Laboratory II /2 cr. hr./3 periods (1 lec., 2 lab)**

Various topics such as drill and ceremonies, physical fitness, cruise preparation, sail training, safety awareness, personal finances, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Information: Prerequisite: Offered in cooperation with the University of Arizona.

*Will not be offered this year*

**NSP 201 Naval Ship Systems II: Weapons /3 cr. hrs./3 periods (3 lec.)**

Theory and employment of weapons systems, the processes of detection, evaluation, threat analysis, selection, delivery, and guidance. Physical aspects of radar and underwater sound.

Information: Course offered in cooperation with the University of Arizona.

*Will not be offered this year*

**NSP 202 Sea Power and Maritime Affairs /3 cr. hrs./3 periods (3 lec.)**

U.S. Naval history from the American Revolution to the present. Discussion of the theories of Mahan, political issues of merchant marine commerce, and a comparison of U.S. and Soviet naval strategies; terrorist aggressor force.

Information: Course offered in cooperation with the University of Arizona.

Offered: Fall/Spring

**NSP 205 Leadership and Management /3 cr. hrs./3 periods (3 lec.)**

Organizational behavior and management in the context of the naval organization. A survey of management functions of planning, organizing, and controlling; and introduction to individual and group behavior in organizations; motivation and leadership.

Information: Course offered in cooperation with the University of Arizona.

*Will not be offered this year*



## RESERVE OFFICERS TRAINING CORPS — ROTC — ARMY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

### 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: Fall

### 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.

Offered: Spring

### 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, Arizona.

Offered: Fall

### 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 tactic planning skills, practical experiences in writing and briefing military operation orders and land navigation.

Information: Required field trip to Ft. Huachuca, Arizona.

Offered: Spring

## RESPIRATORY THERAPY

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

### RTH 110 Introduction to Respiratory Care /4 cr. hrs./4 periods (4 lec.)

Prerequisite(s): Admission to the RTH program.

Overview of respiratory care, its evolution as a profession and its current relation to the modern health care system. Includes medical terminology, health communication, computer applications, principles of infection control, as well as ethical and legal implications of health care. Also includes study of physical principles related to respiratory care.

Information: See a faculty advisor prior to enrollment.

Offered: Fall

### RTH 112 Respiratory Physiology /4 cr. hrs./4 periods (4 lec.)

Prerequisite(s): Admission to RTH program and BIO 160.

Study of the cardiopulmonary system and associated structures. Includes nervous system control of ventilation, renal system, and principles involved in ventilation and gas transport. Also includes the effects of aging, exercise, and altitude on the cardiopulmonary system.

Offered: Fall

### RTH 121/121LB Basic Therapeutics /5 cr. hrs./7 periods (4 lec., 3 lab)

Prerequisite(s): RTH 110, 112.

Corequisite(s): Concurrent enrollment in RTH 125.

Basic respiratory care therapeutics, equipment function, clinical indications and contraindications. Includes medical gas administration, humidity and aerosol therapy, hyperinflation therapy, chest physiotherapy, basic cardiac life support, and basic airway management.

Offered: Spring

### RTH 123/123LB Basic Assessment and Monitoring /4 cr. hrs./6 periods (3 lec., 3 lab)

Prerequisite(s): RTH 110, 112.

Corequisite(s): Concurrent enrollment in RTH 121.

Study of patient assessment, diagnostic procedures, and testing techniques. Includes the detection and monitoring of adult, neonatal and pediatric cardiorespiratory disorders. Also includes participation in a service-learning project.

Offered: Spring

### RTH 124 Pharmacology for Respiratory Care /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): RTH 110, 112.

Principles of pharmacology, drug dose calculations, and drug receptor theory as it relates to patients with cardiopulmonary disease. Includes specific emphasis on drugs used by respiratory care practitioners as well as discussion of other drugs used in the treatment of patients under their care.

Offered: Spring

### RTH 125LB Clinical Procedures I /1 cr. hr./4 periods (4 lab)

Prerequisite(s): RTH 110, 112.

Clinical application of all prerequisite and concurrent respiratory care course work. Includes hospital and departmental organization, professionalism, medical record utilization, oxygen administration and analysis, and respiratory physiology principles applied to patient care.

Offered: Spring

### RTH 135LB Clinical Procedures II /4 cr. hrs./16 periods (16 lab)

Prerequisite(s): RTH 121, 123, 124, 125.

Continuation of RTH 125. Includes clinical application of all prerequisite respiratory care course work. Also includes basic respiratory care therapeutics, basic assessment, monitoring, and clinical application of cardiopulmonary medications.

Offered: Summer

### RTH 241/241LB Critical Care Therapeutics /5 cr. hrs./7 periods (4 lec., 3 lab)

Prerequisite(s): RTH 121, 123, 124, 125, 135.

Corequisite(s): Concurrent enrollment in RTH 243.

Study of critical care principles and procedures in the adult patient. Includes advanced airway management, mechanical ventilation principles, care of the mechanically ventilated patient, and alternatives to conventional ventilation.

Offered: Fall

### RTH 243/243LB Advanced Assessment and Monitoring /4 cr. hrs./6 periods (3 lec., 3 lab)

Prerequisite(s): RTH 135.

Corequisite(s): Concurrent enrollment in RTH 241.

Study of the assessment of the critical respiratory patient. Includes advanced diagnostic studies and testing techniques employed in the detection and monitoring of adult, neonatal, and pediatric cardiorespiratory disorders. Also includes participation in a service-learning project.

Offered: Fall

### RTH 245LB Clinical Procedures III /4 cr. hrs./16 periods (16 lab)

Prerequisite(s): RTH 135.

Corequisite(s): Concurrent enrollment in RTH 241, 243, 246.

Continuation of RTH 135. Includes clinical application of all prerequisite respiratory care course work with emphasis on adult critical care, assessment and monitoring. Also includes cooperative and problem-based learning and students will interact with and present case studies to the program's medical director.

Offered: Fall

### RTH 246 Cardiorespiratory Disorders I /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): RTH 121, 123, 124.

Study of commonly encountered respiratory disorders in the adult patient. Includes examination of the etiology, pathology, pathogenesis, clinical manifestations and treatment of a variety of common adult pulmonary diseases.

Offered: Fall

### RTH 251/251LB Specialty Therapeutics /5 cr. hrs./7 periods (4 lec., 3 lab)

Prerequisite(s): RTH 241, 243, 245, 246.

Study of respiratory therapies used in specialized environments. Includes basic and advanced respiratory care of the neonatal and pediatric patient, discussion of fetal development, birth, transitions, neonatal and pediatric resuscitation, neonatal mechanical ventilation, selected ventilators, high frequency ventilation and extra corporeal membrane oxygenation. Also includes advanced cardiac life support (ACLS), pulmonary rehabilitation, respiratory care outside of the hospital environment, balloon pump function, hyperbaric oxygenation and recent advances in respiratory care techniques and procedures.

Offered: Spring

### RTH 255LB Clinical Procedures IV /4 cr. hrs./20 periods (20 lab)

Prerequisite(s): RTH 241, 243, 245.

Corequisite(s): Concurrent enrollment in RTH 251, 256, 257.

Continuation of RTH 245. Includes clinical application of all prerequisite respiratory care course work with emphasis on adult critical care, neonatal/pediatric basic and critical care therapeutics, assessment and monitoring, pulmonary rehabilitation, and specialized environments for the delivery of respiratory care.

Offered: Spring

**RTH 256 Cardiorespiratory Disorders II /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): RTH 246.*

Continuation of RTH 246. Includes the study of commonly encountered respiratory disorders in the adult patient and examination of pulmonary problems related to the newborn and pediatric patient. Also includes examination of the etiology, pathology, pathogenesis, clinical manifestations, and treatment of selected adult, neonatal, pediatric cardiopulmonary diseases.

*Offered: Spring***RTH 257LB Clinical Applications and Professional Development / 1 cr. hr./4 periods (4 lab)***Prerequisite(s): RTH 241, 246.**Corequisite(s): Concurrent enrollment in RTH 251, 255, 256.*

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.

*Offered: Spring***RESTAURANT CULINARY AND FOODSERVICE MANAGEMENT**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338.

**RCF 115 Meat Cutting for the Foodservice Industry /2 cr. hrs./2 periods (2 lec.)**

Butchering of meat for quantity food preparation. Includes history, purchasing guidelines, government regulations, cuts and usage for pork, lamb, veal, and beef.

*Offered: Fall/Spring/Summer***RUSSIAN**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**RUS 101 Elementary Russian I /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 /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): RUS 101.*

Continuation of RUS 101. Includes grammar and vocabulary, housing and furniture, family and professions, shopping, money and measurements, and biographies of people.

*Offered: Fall/Spring***RUS 201 Intermediate Russian I /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): RUS 102 or two years of high school Russian.*

Continuation of RUS 102. Includes grammar review, plural case endings, prepositional/accusative cases, weather and climate, and reflexive verbs.

*Offered: Fall***RUS 202 Intermediate Russian II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): RUS 201.*

Continuation of RUS 201. Includes grammar review, sports terms, health care terms, postal system, traveling in Russia, and etiquette.

*Offered: Spring***SAFETY EDUCATION**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**SED 110 Sit-down Lift Truck Operations /3 cr. hrs./7 periods (1 lec., 6 lab)***Prerequisite(s): Current Arizona driver license.*

Principles and procedures for sit-down lift truck operations. Includes pre-operational safety check, starting, driving, and safety techniques.

*Offered: Spring***SED 115 Stand-up, Narrow-Aisle Lift Truck Operations /2 cr. hrs./4 periods (1 lec., 3 lab)***Prerequisite(s): Current Arizona driver license.*

Principles and procedures for stand-up, narrow-aisle lift truck operations. Includes pre-operational safety check, starting, driving, and safety techniques.

*Offered: Fall***SIGN LANGUAGE**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**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 communication systems.

*Offered: Fall/Spring***SLG 055 Conversational Sign Language II /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): SLG 050 or consent of instructor.*

Conversational sign language skills. Includes intermediate sign vocabulary, d/Deaf culture, and a focus on developing intermediate skills in sign language.

*Offered: Fall/Spring***SLG 101 American Sign Language I /4 cr. hrs./6 periods (3 lec., 3 lab.)**

Introduction to American Sign Language. Includes principles, methods and techniques for communicating with deaf individuals who sign. Also includes a brief history of sign, introduction to Deaf culture, development of expressive and receptive sign skills, manual alphabet, numbers and sign vocabulary.

*Information:* Students will be required to perform an additional 10 lab hours outside of the regular classroom schedule.

*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.)***Prerequisite(s): SLG 101.*

Continuation of SLG 101. Includes sign vocabulary, numbers, finger-spelling, and culture. Also includes an emphasis on enhancement of receptive sign skills, further development of expressive sign skills, and application of rudimentary syntactical and grammatical structure.

*Information:* Students will be required to perform 10 additional lab hours outside of the regular schedule.

*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.)***Prerequisite(s): SLG 102.*

Continuation of SLG 102. Includes an integration of ASL expressive and receptive skills using bilingual techniques. Also includes vocabulary expansion, idioms, manual and non-manual aspects of ASL, ASL linguistics, cross-cultural communication, and cultural knowledge of ASL.

*Information:* Students will be required to perform an additional 10 lab hours outside of regular classroom schedule.

*Information:* This class is conducted primarily without voice.

*Offered: Fall/Spring/Summer***SLG 202 American Sign Language IV /4 cr. hrs./6 periods (3 lec., 3 lab.)***Prerequisite(s): SLG 201.*

Continuation of SLG 201. Includes continued expansion of sign vocabulary, sharpening of fingerspelling and number skills, and review of and instruction in linguistic knowledge of ASL. Also includes an emphasis on conversational techniques and skills in ASL in a cross-cultural framework.

*Information:* Students will be required to perform an additional 10 lab hours outside of regular classroom schedule.

*Information:* This class is conducted primarily without voice.

*Offered: Fall/Spring/Summer***SOCIAL SERVICES**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**SSE 110 Introduction to Social Welfare /3 cr. hrs./3 periods (3 lec.)**

Introduction to the social welfare system. Includes approaches to service delivery, community resources, bureaucratic structures, welfare myths and realities, special populations, and cultural awareness. Also includes local community agencies and resources, welfare policies and case histories.

*Offered: Fall/Spring/Summer***SSE 111 Group Work /3 cr. hrs./3 periods (3 lec.)**

Examination of group dynamics. Includes communication patterns, leadership, decision-making, conflict resolution, problem solving, and personal growth within groups. Also includes application of concepts through observation, group exercises, and case studies.

*Offered: Fall/Spring*

**SSE 121 Introduction to Substance Abuse /3 cr. hrs./3 periods (3 lec.)**

Introduction to the history of drug abuse, including alcohol in the United States. Includes classification of drugs, historical review of drug laws, prohibition, theories of addiction, treatment, strategies, cultural perspectives and treatment interventions. Also includes special populations, education, and available resources to addicts, alcoholics and their families.

*Offered: Fall*

**SSE 123 Substance Abuse Prevention /3 cr. hrs./3 periods (3 lec.)**

Comprehensive review of approaches to prevention. Includes drug control policies and the impact of abused substances on all segments of society. Also includes focus on the resources of multiple societal sectors to reduce the demand for drugs.

*Offered: Fall/Spring*

**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: Summer*

**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 the definitions, dynamics, symptoms, risks, and effects of the various forms of child maltreatment and emphasizes prevention and utilization of community resources. Also includes the process of intervention by society, the roles of various professionals in the investigation, adjudication, treatment, and case management of child abuse cases.

*Offered: Fall/Spring*

**SSE 154 Nutrition /3 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 the normal development needs of children and adolescents, the special needs of dependent, delinquent, challenged and special needs youth, roles of youth workers, and the need to focus on prevention through strengthening families and communities. Also includes a survey of local youth serving agencies.

*Information:* Same as AJ5 160.

*Offered: Fall*

**SSE 170 Community Health Advisor /3 cr. hrs./3 periods (3 lec.)**

Preparation of Community Health Advisors for outreach health prevention, advocacy, education, and referral services within prescribed neighborhoods. Includes community health and human services, capacity-building, cultural mediation, health education assessment, teaching, interpersonal communication, organization, and advocacy skills.

*Offered: Fall/Spring*

**SSE 202 Casework Methods I /3 cr. hrs./3 periods (3 lec.)**

Theory and practice of casework within the context of the Southwest. Includes case management, interviewing, case history and review, treatment planning, and development of helping relationships. Also includes major helping theories and strategies and case samples from varied settings, and provides a theoretical foundation and skills base for social work interventions with individuals, small groups and larger systems.

*Offered: Fall/Spring*

**SSE 210 Community Organization and Development /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SSE 110.

Principles and techniques of organizing to effect change. Includes role of the professional organizer, nature of institutions, causes of change or failure to change, and strategies for effective change.

*Offered: Fall/Spring*

**SSE 211 Group Technique Applications /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SSE 111.

Application of advanced concepts in group dynamics. Includes skill development through in-class experiential learning and group facilitation. Also includes community-group case studies, ethical standards, and multicultural issues.

*Offered: Fall/Spring*

**SSE 212 Casework Methods II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SSE 202.

Advanced techniques in interviewing, recording, client evaluation, case management, strategies for intervention, and focus on diverse and special populations. Includes application of advanced skills in varied settings and attention to service delivery in a fragmented community resource system.

*Offered: Fall/Spring*

**SSE 220 Treatment of the Substance Abuser /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SSE 121.

*Recommended:* SSE 123.

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.

*Offered: Spring*

**SSE 222 Political and Legal Aspects of Drug Use /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SSE 121.

*Recommended:* SSE 123.

Overview of drug abuse and the law. Includes historical and legal overview, major drug legislation and court decisions, attitudes toward drug use and the connection between drugs, crime and gangs, implications of decriminalization or legalization of illicit drugs, and narcotics. Also includes nature, uses, legal status, social and economic aspects of the major psychoactive drugs, international drug trafficking and its affect on U.S. policy and programs, law enforcement, and case studies.

*Offered: Spring*

**SSE 242 Crisis Intervention, Theory and Techniques /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SSE 202 or consent of instructor.

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.

*Will not be offered this year*

**SSE 260 Youth Services: Policy, Practice and Prevention /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* SSE 160.

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.

*Offered: Spring*

**SSE 261 Introduction to Rehabilitation Services /3 cr. hrs./3 periods (3 lec.)**

Introduction to disability and rehabilitation services. Includes issues faced by persons experiencing disability, the rehabilitation delivery system, vocational rehabilitation outcomes, interpersonal communication skills, consumer involvement and self management, and ethics and professionalism. Also includes issues on environmental barriers and solutions.

*Information:* Same as EDU 261.

*Offered: Fall*

**SSE 262 Assistive Technology for Individuals with Disabilities /3 cr. hrs./3 periods (3 lec.)**

Study of assistive technology devices, products, and applications techniques. Includes assistive technology to assist individuals with disabilities, special adaptive needs, basic computer skills related to assistive technology, assessment practices and ethical considerations, assistive equipment, positioning and seating technology, programming processor controlled augmentative communication devices, improving accessibility of environment, computer software applications, adapting activities to available equipment and supplies, adapting assistive and alternative keyboards to specific needs, programming scanning keyboards and single switch control of the computer, using the internet, using voice recognition software, evaluating equipment, and developing/adapting low- and mid-tech devices to meet specific needs.

*Information:* Same as EDU 262.

*Offered: Spring*



**SSE 289 Topics in Community Involvement /1-6 cr. hrs./1-6 periods (1-6 lec.)***Prerequisite(s): Consent of instructor.*

Direct, constructive 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:* May be taken two times for a maximum of six credit hours.

*Information:* Same as SOC 289.

*Offered:* Fall/Spring

**SSE 290 Field Experience Youth Services /4 cr. hrs./16 periods (1 lec., 15 lab)***Prerequisite(s): SSE 160, 202 and consent of instructor.**Recommended: Consult instructor for alternative prerequisite(s).*

Supervised placement in community youth serving agencies. Includes classroom seminars which discuss pertinent theory and issues raised through the field experience.

*Information:* May be taken two times for a maximum of eight credit hours.

*Offered:* Fall/Spring

**SSE 292 Social Services Field Experience /4 cr. hrs./16 periods (1 lec., 15 lab)***Prerequisite(s): SSE 202.**Recommended: Consult instructor for alternative prerequisite(s).*

Supervised placement in community social services agencies. Includes classroom seminars which discuss pertinent theory and issues raised through the field experience.

*Information:* May be taken two times for a maximum of eight credit hours.

*Offered:* Fall/Spring

**SSE 293 Community Health Advising Field Experience /6 cr. hrs./25 periods (1.2 lec., 24 lab)***Prerequisite(s): SSE 170.*

Community Health Advisor skills practiced and evaluated in community-based health and human service agencies and settings. Includes supervised placement in community serving agencies and classroom seminars covering pertinent theory and issues raised through the field experience.

Information: Students complete 320 clock hours of direct service scheduled in an 8-week block at 40 hours per week or 16 weeks at 20 hours per week.

*Offered:* Spring

**SSE 294 Disability Rehabilitation Services Field Experience /3 cr. hrs./15 periods (15 lec.)***Prerequisite(s): EDU 270.*

Skills practice in working with persons with disabilities in a supervised setting. Includes direct services to people with disabilities, identifying personal job-related interests, different job roles, conferences with consumer, family, and agencies, communication and problem-solving skills, group processes, applying theories to rehabilitation/disability settings, and developing job skills.

*Offered:* Spring

**SSE 296 Independent Study in Social Services /1-3 cr. hrs./3-9 periods (3-9 lab)***Prerequisite(s): Consent of instructor.*

Advanced projects, research and learning in the social services. Content to be determined by conference between student and instructor.

*Information:* May be taken three times for a maximum of nine credits.

*Offered:* Fall/Spring/Summer

**SOCIOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**SOC 101 Introduction to Sociology /3 cr. hrs./3 periods (3 lec.)**

Introduction to the basic concepts of sociology and sociological analysis. Includes identity, folkways, norms, mores, groups, status, role, gender, socialization, social structure, culture and ethnicity. Also includes deviance, social control, bureaucracy, social change, social class, collective behavior, social movements, social stratification, inequality, institutions, social organization, and globalization within and across contemporary societies and cultures.

*Offered:* Fall/Spring/Summer

**SOC 103 Explorations in Prejudice /3 cr. hrs./3 periods (3 lec.)**

Focus on and exploration of the source and consequences of various forms of prejudice within the United States as well as globally. Includes examination of the concept of prejudice from several sociological perspectives and of current trends of prejudice.

*Will not be offered this year*

**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 the urban dilemma and possible solutions. Also includes a special emphasis on understanding cities on the global as well as local event.

*Will not be offered this year*

**SOC 120 Current Social Problems /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): SOC 101.*

Analysis of social disorganization. Includes causes and effects of social problems, focus and solutions to social problems, power shifts and the global order, and education and structures of power.

*Offered:* Fall/Spring/Summer

**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.

*Information:* Same as deleted course HEC 127.

*Offered:* Fall/Spring/Summer

**SOC 166 Social Gerontology /3 cr. hrs./3 periods (3 lec.)**

Introduction to the bio-cultural and holistic study of aging, dying, and death. Includes the bio-social process of aging, factors in longevity and the social meaning of death.

*Will not be offered this year*

**SOC 201 Minority Relations and Urban Society /3 cr. hrs./3 periods (3 lec.)**

Analysis of minority development and relations in the United States. Includes social, political, economic and historical data for overviews, understandings, critical thinking and writing about the evolution of minorities.

*Offered:* Fall/Spring/Summer

**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:* Spring

**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/Spring/Summer



**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.

*Information:* Same as PSY 215.

*Offered:* Fall/Spring/Summer

**SOC 273 Sociology of Sport /3 cr. hrs./3 periods (3 lec.)**

Analysis of the impact of sport on society. Includes the relationship of sport to societal institutions: the economy, politics, education, family, religion, and the interrelationships between sport and the concepts of race, gender, and stratification. Also includes the examination of contemporary issues in sport including the economics of sport, ethics, gender equity, and the relationships between players, coaches, and fans.

*Offered:* 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 educational system, social theories of education, cultural theories of education, policy and school reform, and education for individual and societal change.

*Offered:* Fall/Spring/Summer

**SOC 289 Topics in Community Involvement /1-6 cr. hrs./1-6 periods (1-6 lec.)**

*Prerequisite(s):* Consent of instructor.

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 six credit hours.

*Offered:* Fall/Spring

**SOC 296 Individual Studies in Sociology /1-6 cr. hrs./1-6 periods (1-6 lec.)**

*Prerequisite(s):* Consent of instructor.

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:* Fall/Spring/Summer

**SPANISH**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**SPA 050 Social and Cultural Spanish: Food Traditions and Dining / 2 cr. hrs./2 periods (2 lec.)**

Introduction to the Spanish language presented in the context of food traditions and dining. Includes food in the culture of Spanish speaking countries, language of groceries and ingredients, and conversation for dining.

*Offered:* Fall/Spring

**SPA 051 Social and Cultural Spanish: Travel /2 cr. hrs./2 periods (2 lec.)**

Introduction to the Spanish language presented in the context of travel, from planning a trip to returning home. Includes travel in Spanish speaking countries, words and phrases related to transportation, conversation for hotels, restaurants, and tourist services, and language of health and hygiene.

*Offered:* Fall/Spring

**SPA 052 Social and Cultural Spanish: Cinema /2 cr. hrs./2 periods (2 lec.)**

Viewing and discussing Spanish language films from regions throughout the Spanish-speaking world. Includes cinema of Spain, Cuba, Caribbean, South America, Mexico, and Central America. Also includes sociopolitical elements and cultural values of the regions expressed through films.

*Information:* No prior knowledge of Spanish is required, subtitles are provided.

*Offered:* Fall/Spring

**SPA 053 Social and Cultural Spanish: Music /2 cr. hrs./2 periods (2 lec.)**

Listening and discussing contemporary Spanish and Latin American songs from the earlier decades to the present. Includes rhythms, instruments, and composers.

*Will not be offered this year*

**SPA 055 Language Study and Travel in Spain, Italy, and France / 2 cr. hrs./2 periods (2 lec.)**

Introduction to French, Italian, and Spanish language presented in the context of travel through these three countries. Includes travel in Spain, Italy, and France, lodging, money, and transportation terminology, culinary traditions, restaurants and markets, and travel destinations.

*Information:* Prior language knowledge is not required.

*Information:* Same as FRE 055 and ITA 055.

*Offered:* Fall/Spring

**SPA 056 Social & Cultural Spanish: Dance from Pre-Columbian to Colonial /2 cr. hrs./2 periods (2 lec.)**

Introduction of Pre-Columbian to Colonial dances of Latin America presented in historical context. Includes mythology of dance, historical background of dance, and music and instruments. Also includes cultural contexts of movements and dances.

*Will not be offered this year*

**SPA 057 Social & Cultural Spanish: Dance from Post-Colonial to Contemporary /2 cr. hrs./2 periods (2 lec.)**

Introduction of Post-Colonial to Contemporary dances of Latin America presented in historical context. Includes historical backgrounds of dance, and dances of North, Central, and South America. Also includes cultural contexts of movements and dances.

*Will not be offered this year*

**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/Summer

**SPA 101 Elementary Spanish I /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.

*Offered:* Fall/Spring/Summer

**SPA 101A Elementary Spanish I: Module A /1 cr. hr./1 period (1 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:* Will not be offered this year

**SPA 101B Elementary Spanish I: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* SPA 101A.

SPA 101B constitutes approximately the second one-fourth of SPA 101.

*Information:* SPA 101A, 101B, 101C, 101D together constitute SPA 101.

*Will not be offered this year*

**SPA 101C Elementary Spanish I: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* SPA 101B.

SPA 101C constitutes approximately the third one-fourth of SPA 101.

*Information:* SPA 101A, 101B, 101C, 101D together constitute SPA 101.

*Will not be offered this year*

**SPA 101D Elementary Spanish I: Module D /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* SPA 101C.

SPA 101D constitutes approximately the fourth one-fourth of SPA 101.

*Information:* SPA 101A, 101B, 101C, 101D together constitute SPA 101.

*Will not be offered this year*

**SPA 102 Elementary Spanish II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* SPA 101 or equivalent.

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.

*Offered:* Fall/Spring/Summer

**SPA 102A Elementary Spanish II: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* SPA 101 or equivalent.

SPA 102A constitutes approximately the first one-fourth of SPA 102.

*Information:* SPA 102A, 102B, 102C, and 102D together constitute SPA 102.

*Will not be offered this year*

**SPA 102B Elementary Spanish II: Module B /1 cr. hr./1 period (1 lec.)***Prerequisite(s): SPA 102A.*

SPA 102B constitutes approximately the second one-fourth of SPA 102.  
*Information:* SPA 102A, 102B, 102C, and 102D together constitute SPA 102.

*Will not be offered this year***SPA 102C Elementary Spanish II: Module C /1 cr. hr./1 period (1 lec.)***Prerequisite(s): SPA 102B or equivalent.*

SPA 102C constitutes approximately the third one-fourth of SPA 102.  
*Information:* SPA 102A, 102B, 102C, and 102D together constitute SPA 102.

*Will not be offered this year***SPA 102D Elementary Spanish II: Module D /1 cr. hr./1 period (1 lec.)***Prerequisite(s): SPA 102C or equivalent.*

SPA 102D constitutes approximately the fourth one-fourth of SPA 102.  
*Information:* SPA 102A, 102B, 102C, and 102D together constitute SPA 102.

*Will not be offered this year***SPA 103 Beginning Spanish for Spanish Speakers /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): Ability to speak Spanish.*

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.

*Offered: Fall/Spring***SPA 106 Beginning Conversation /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 /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): SPA 106.*

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.

*Offered: Spring***SPA 120 Spanish for Medical Personnel /3 cr. hrs./3 periods (3 lec.)**

Conversational practice in a medical context. Designed to develop speaking and listening techniques essential for basic medical situations, stressing expressions of courtesy and medical terminology.

*Offered: Fall/Spring***SPA 121 Elementary Spanish for Business I /4 cr. hrs./4 periods (4 lec.)**

Introduction to Spanish with a primary focus on language used in a variety of business situations. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

*Information:* Same as IBS 121.*Offered: Fall/Spring***SPA 122 Elementary Spanish for Business II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 121.*

Continuation of SPA 121. Includes increasingly complex oral and written forms, grammatical structures, and language used in a variety of business situations. Also includes interpersonal business transactions and geographical and cultural awareness.

*Information:* Same as IBS 122.*Will not be offered this year***SPA 126 Elementary Spanish for School Personnel I /4 cr. hrs./4 periods (4 lec.)**

Introduction to Spanish with a primary focus on language used in a variety of school and academic situations. Includes basic oral and written forms, grammatical structures, interpersonal transactions, and geographical and cultural awareness.

*Offered: Summer***SPA 127 Elementary Spanish for School Personnel II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 126.*

Continuation of SPA 126. Includes increasingly complex oral and written

forms, grammatical structures, and language used in a variety of school and academic situations.

*Will not be offered this year***SPA 201 Intermediate Spanish I /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 102 or equivalent.*

Continuation of SPA 102. Includes reading a variety of materials, discussing these readings, and writing compositions while reviewing grammatical structures. Also includes listening comprehension and Hispanic cultural components where Spanish is spoken.

*Offered: Fall/Spring/Summer***SPA 202 Intermediate Spanish II /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 201.*

Continuation of SPA 201. Includes reading selections from original, authentic writings, conversation and discussions on a more advanced level, writing compositions using grammatically correct structure, and development of creative writing skills in Spanish. Also includes listening and comprehending lengthy spoken discourse, and a broader study of cultural differences within the Hispanic world.

*Offered: Fall/Spring/Summer***SPA 203 Writing and Oral Skills for Spanish Speakers /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 103 or equivalent or ability to speak Spanish.*

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.

*Offered: Fall/Spring/Summer***SPA 206 Advanced Conversation /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 107.*

Development of oral communicative techniques and critical thinking skills. Includes communicative skills, complex vocabulary utilization, grammatical structures, and cultural awareness.

*Offered: Fall/Spring***SPA 230 Introduction to Literature in Spanish /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 202 or equivalent or consent of instructor.*

Survey of literature written in Spanish. Includes genres of Spanish literature, literary periods of Spain and Latin America, major Spanish literary works, advanced essay composition on Spanish literary works, interpreting Spanish literary works, and oral presentations on Spanish literary works and authors.

*Offered: Fall/Spring***SPA 240 Grammar and Composition /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): SPA 251 or 253, or TRS 102.*

Development of advanced grammar and writing communicative skills. Includes grammar structures, factual, expository, and argumentative writing.

*Offered: Spring***SPA 250 Spanish Phonetics /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): SPA 202 or 253.*

Introduction to the sound system of the Spanish language. Includes terminology, classification of sounds, characteristics of sounds, phonological elements, and dialectal variation.

*Offered: Fall***SPA 251 Spanish for Majors /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): SPA 202.*

Tools for thinking critically and analytically in Spanish. Includes writing proficiency, reading proficiency, and control of language through lexical and grammatical precision.

*Offered: Fall/Spring***SPA 253 Intermediate Spanish for Spanish Speakers /4 cr. hrs./4 periods (4 lec.)***Prerequisite(s): SPA 203 or equivalent or ability to speak, read, and write Spanish.*

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 culture.

*Offered: Fall/Spring***SPA 254 Intermediate Grammar and Writing for Spanish Speakers /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s): SPA 253.*

Intensive grammar and writing for Spanish speakers within a dynamic cultural context. Includes complex intermediate oral communication, interme-

diate grammar and writing communication, exploration of diversity of culture and customs, and themes in literature.

*Offered: Fall/Spring*

**SPA 296 Independent Study in Spanish /1-4 cr. hrs./1-4 periods (1-4 lab)**

*Prerequisite(s): Consent of instructor.*

Independent Spanish readings or other projects under the supervision of an instructor.

*Information:* May be taken two times for a maximum of eight credit hours.

*Offered: Fall/Spring*

**SPA 297 Spanish Language Seminar /25-4 cr. hrs./25-4 periods (.25-4 lec.)**

*Prerequisite(s): Consent of instructor.*

Spanish language related training. Includes presentations and development of skills in a given area, and topics of timely or limited interest.

*Will not be offered this year*

## SPEECH COMMUNICATION

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**SPE 102 Introduction to Speech Communication /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 listening, communication styles, communication barriers, and methods to help eliminate barriers.

*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 developing skills in the areas of research, logic, analysis, organization, and delivery in a multicultural society.

*Offered: Fall/Spring/Summer*

**SPE 120 Business and Professional Communication /3 cr. hrs./3 periods (3 lec.)**

Study and training in organizational communication within a multicultural/global environment. Includes informative and persuasive speaking, interviewing, listening, and group problem-solving and decision-making.

*Offered: Fall/Spring*

**SPE 124 Argumentation /3 cr. hrs./3 periods (3 lec.)**

Principles and practice of argumentation. Includes basic forms of analysis, evidence, proof, reasoning, and refutation.

*Offered: Fall/Spring*

**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, norms of group participation and interaction, and group leadership. Also includes a special focus on communication in group decision-making.

*Offered: Fall/Spring*

**SPE 136 Oral Interpretation of Literature /3 cr. hrs./3 periods (3 lec.)**

Study and training in the oral presentation of literature. Includes literary conventions, analysis techniques, role of the interpreter, use of voice and body, characterization, and oral interpretation modes. Also includes a special focus on analyzing and experiencing literature as human discourse.

*Will not be offered this year*

**SPE 249 Special Studies in Speech Communication /1-4 cr. hrs./1-4 periods (1-4 lec.)**

*Prerequisite(s): Six credit hours in speech communication.*

Under individual guidance of an instructor, student researches an aspect of communication not available through regular course offerings.

*Will not be offered this year*

## STUDENT SUCCESS

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**STU 050 Approaching Mathematics Positively /1 cr. hr./1 period (1 lec.)**

Designed for students who avoid taking mathematics courses or who have anxiety in mathematics courses. Includes defining mathematics anxiety, underlying causes, and practicing anxiety reduction techniques. Also includes mathematics study and test-taking.

*Information:* Same as MAT 050.

*Offered: Fall/Spring/Summer*

**STU 100 College Success Skills /1 cr. hr./1 period (1 lec.)**

Skills and techniques required for being an efficient student. Includes goal setting and problem solving, time management, organizing study materials/study techniques, college/community resources, learning styles, concentration and memory, note-taking techniques, tips for making note-taking easier, test-taking techniques, and test anxiety.

*Offered: Fall/Spring/Summer*

**STU 100A How to Study /.25 cr. hr./25 period (.25 lec.)**

Instruction and practice in techniques required for being an "efficient" student. Includes goal setting and problem solving, time management, organizing study materials/study techniques, and college/community resources.

*Information:* STU 100A, 100B, 100C, and 100D together constitute STU 100.

*Offered: Fall/Spring/Summer*

**STU 100B Memory and Concentration /.25 cr. hr./25 period (.25 lec.)**

Strategies for improving memory and concentration. Includes learning styles and concentration and memory.

*Information:* STU 100A, 100B, 100C, and 100D together constitute STU 100.

*Offered: Fall/Spring/Summer*

**STU 100C Notetaking Tips /.25 cr. hr./25 period (.25 lec.)**

Systematic instruction and practice taking notes from lectures and print material. Includes note-taking techniques and tips for making note-taking easier.

*Information:* STU 100A, 100B, 100C, and 100D together constitute STU 100.

*Offered: Fall/Spring/Summer*

**STU 100D Testing Tips /.25 cr. hr./25 period (.25 lec.)**

Instruction and practice in preparing for and taking tests. Includes test taking techniques and test anxiety.

*Information:* STU 100A, 100B, 100C, and 100D together constitute STU 100.

*Offered: Fall/Spring/Summer*

**STU 101 Becoming A Master Student /3 cr. hrs./3 periods (3 lec.)**

*Recommended: Competency at the REA 091 and WRT 100 level.*

Enhancement of academic and personal skills to maximize learning and success at the college level. Includes assessing college readiness and learning skills, time management, building memory and concentration skills, reading for college, note taking, test taking, diversity, writing for college, relationships, lifestyle and wellness, and next step.

*Offered: Fall/Spring/Summer*

**STU 102 Personal Finance in College Decision Making /1 cr. hrs./1 period (1 lec.)**

Basic elements of personal and family finances. Includes managing personal finances, funding resources and financial obligations, strategies for success, setting a career direction and taking control of the future, and transition from college into the mainstream.

*Offered: Fall/Spring/Summer*

**STU 102A Managing Personal Finances /.25 cr. hrs./25 periods (.25 lec.)**

Skills necessary for the development of a financial plan. Includes budget development and the implications of borrowing and using credit.

*Offered: Fall/Spring/Summer*

**STU 102B Meeting Financial Obligations /.25 cr. hrs./25 periods (.25 lec.)**

Identification of personal resources. Includes funding resources and financial obligations.

*Offered: Fall/Spring/Summer*

**STU 102C 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.

*Offered: Fall/Spring/Summer*

**STU 102D Transition from College to the Mainstream /.25 cr. hrs./25 periods (.25 lec.)**

Techniques for transitioning from college to employment. Includes living within financial means and loan repayment obligations.

*Offered: Fall/Spring/Summer*



**STU 103 Becoming a Critical Thinker /3 cr. hrs./3 periods (3 lec.)**

Development and application of thinking strategies. Includes understanding the fundamentals, becoming an individual, evaluating arguments, recognizing errors in thinking, applying critical thinking strategies, and creative thinking.

*Offered: Fall/Spring/Summer*

**STU 104 Career and Self-Management Skills /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Acceptance into the Progress! program.*

Techniques for developing academic, personal, and professional skills of the single parent, homemaker, and reentry student. Includes college success tools, skills, community resources, personal, academic and financial aid goals, time management, self-esteem, stress management, career exploration, gender awareness, assertiveness training, critical thinking, and job development.

*Offered: Fall/Spring*

**STU 107 Pre-Transfer Success Skills /1 cr. hrs./1 periods (1 lec.)**

*Prerequisite: REA 081*

*Recommendation: REA 091, WRT 100, and take this course before completing 30 college credits.*

Development of planning skills and knowledge necessary to prepare for a successful transition to a university. Includes degree/major selection, knowledge of the university and college academic structure, transfer resources such as Arizona General Education Curriculum (AGEC), Course Applicability System (CAS), course equivalency (CEG), transfer guides, transfer centers, transfer advisors, and financial aid and scholarship opportunities.

*Offered: Fall/Spring*

**STU 109 Career Exploration /2 cr. hrs./2 periods (2 lec.)**

Development of skills and knowledge necessary to make career choices. Includes values clarification, skill identification, interest and personality identification and recognition, adult developmental issues, career research, developing a plan of action, review of self-assessment inventory, eliminating stereotypes, advanced career research, information interviews, decision making, and developing an educational/career plan.

*Offered: Fall/Spring/Summer*

**STU 109A Career Exploration: Interests and Values /1 cr. hr./1 period (1 lec.)**

Self-assessment for career decision making. Includes values clarification, skill identification, interest and personality identification and recognition, adult development issues, career research, and developing a plan of action.

*Information:* STU 109A and 109B together constitute STU 109.

*Offered: Fall/Spring*

**STU 109B Career Exploration: Goal Development /1 cr. hr./1 period (1 lec.)**

Resources for career planning. Includes review of self-assessment inventory, eliminating stereotypes, advanced career research, information interviews, decision making, and developing an educational/career plan.

*Information:* STU 109A and 109B together constitute STU 109.

*Will not be offered this year*

**STU 110 Developing Self-Esteem /2 cr. hrs./2 periods (2 lec.)**

Exploration and assessment of student's current self-esteem level. Includes definition, early self-esteem theorists, components of self-esteem development, global and area specific self-esteem, personal assessment, influence of significant others, life script, personality preferences, cultural influences, communication skills, irrational beliefs, cognitive behavioral change strategies, risk taking, and goal development.

*Offered: Fall/Spring*

**STU 120 Building Positive Relationships /3 cr. hrs./3 periods (3 lec.)**

Exploration of the principles of relationships as they are created in families, friendships, employment, college and love/romance. Includes relationship development, characteristics of non-rewarding or negative relationships, building blocks of rewarding or positive relationships, assessing and developing relationship intelligence, listening skills, assertive behavior skills, conflict management skills, collaborative problem solving, and development of an individual plan.

*Will not be offered this year*

**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, co-dependency, stress management, emotions, life values, and a healthy life style.

*Offered: 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. Also includes policies and applications activities for transferring to a university or college of choice.

*Offered: Fall/Spring*

**STU 220 Employment Success Strategies /3 cr. hrs./3 periods (3 lec.)**

Exploration of the world of work and success in the modern workplace. Includes nature of the modern workplace, skills needed to find a job and succeed, assessment of individual skill levels, personal plan for developing employment success skills, practice of employment success skills, and traditional and modern employment search strategies.

*Offered: Spring*

**STU 220A Employment Success Strategies: How to Succeed in the Modern Workplace /1 cr. hr./1 period (1 lec.)**

Exploration of the world of work and success in the modern workplace. Includes nature of the modern workplace and skills needed to find a job and succeed.

*Information:* STU 220A, 220B, and 220C together constitute STU 220.

*Will not be offered this year*

**STU 220B Employment Success Strategies: Assessing and Developing Skills /1 cr. hr./1 period (1 lec.)**

Continuation of STU 220A. Includes assessment of individual skill levels, personal plan for developing employment success skills, and practice of employment success skills.

*Information:* STU 220A, 220B, and 220C together constitute STU 220.

*Will not be offered this year*

**STU 220C Employment Success Strategies: New Job Search /1 cr. hr./1 period (1 lec.)**

Continuation of STU 220B. Includes traditional and modern employment search strategies.

*Information:* STU 220A, 220B, and 220C together constitute STU 220.

*Will not be offered this year*

**STU 230 Dynamics of Leadership /3 cr. hrs./3 periods (3 lec.)**

Supervised practical training in leadership. Includes history, philosophy and vision of leadership, aspects of leadership, power of positive vision, goal setting, decision making, life planning, identifying a personal philosophy, team building, delegating, ethics in leadership, servant leadership, initiating change, managing conflict, and designing and completing leadership projects.

*Information:* Same as MGT 230.

*Offered: Fall/Spring/Summer*

**STU 230A Dynamics of Leadership: Philosophy and Vision /5 cr. hr./5 period (.5 lec.)**

Introduction to leadership. Includes history of leadership, aspects of leadership, and power of positive vision.

*Information:* STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230.

*Information:* Same as MGT 230A.

*Will not be offered this year*

**STU 230B Dynamics of Leadership: Decision Making and Goal Setting /5 cr. hr./5 period (.5 lec.)**

Achieving positive ends. Includes goal setting, decision making, life planning, and identifying a personal philosophy.

*Information:* STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230.

*Information:* Same as MGT 230B.

*Will not be offered this year*

**STU 230C Dynamics of Leadership: Teambuilding and Empowering /5 cr. hr./5 period (.5 lec.)**

Positive groups dynamics. Includes team building and delegating.

*Information:* STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230.

*Information:* Same as MGT 230C.

*Offered: Fall/Spring/Summer*

**STU 230D Dynamics of Leadership: Ethics in Leadership /5 cr. hr./5 period (.5 lec.)**

Development of ethical behavior. Includes ethics in leadership and servant leadership.

*Information:* STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230.

*Information:* Same as MGT 230D.

*Offered: Fall/Spring/Summer*



**STU 230E Dynamics of Leadership: Conflict and Change /5 cr. hr./ .5 period (.5 lec.)**

Elements of the change process. Includes initiating change and managing conflict.

Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230.

Information: Same as MGT 230E.

Offered: Fall/Spring/Summer

**STU 230F Dynamics of Leadership: Developing Viable Leadership Projects /5 cr. hr./ .5 period (.5 lec.)**

Effective leadership skills. Includes designing and completing leadership projects.

Information: STU 230A, 230B, 230C, 230D, 230E, and 230F together constitute STU 230.

Information: Same as MGT 230F.

Offered: Fall/Spring/Summer

**STU 240 Student Leadership for Community Involvement /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): STU 230 or consent of instructor.

Supervised service learning training in leadership. Includes relational leadership model, SERVE service learning model, leadership strategies for implementation and evaluation of strategies. Also includes participation in community and college service learning projects and portfolio preparation.

Offered: Fall/Spring

**TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**TEC 100 Introduction to Electronics Technology /3 cr. hrs./4 periods (2 lec., 2 lab)**

Overview of the principles and techniques of basic electrical concepts. Includes fundamentals of electricity, current, voltage, resistance, ohm's law, electrical measurements, meters, power, DC circuits, magnetism, inductance, capacitance, alternating current, transformers and AC circuits. Also includes the language of electronics and the mathematical foundations and relations relative to the electronics industry.

Offered: Fall/Spring/Summer

**TEC 101 Physics for Technology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TEC 111 or consent of instructor.

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.

Offered: Fall/Spring/Summer

**TEC 102 Principles of Electronic and Optical Devices /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): TEC 101

Overview of the principles and techniques of basic electronic and optical devices. Includes semiconductor fundamentals, PN junction diodes, Zener diodes, bipolar transistors, field effect transistors, thyristors, integrated circuits, optoelectronic devices, power supplies, amplifier applications, oscillators, waveshaping circuits, basic logic gates, and sequential logic circuits.

Offered: Fall/Spring/Summer

**TEC 103 Light and Optical Systems /2 cr. hr./3 periods (1 lec., 2 lab.)**

Prerequisite(s): TEC 113.

Introduction to light and optical systems used in photolithographic processes and equipment in semiconductor manufacturing. Includes principles, terminology, and components used in basic optical systems.

Offered: Fall/Spring

**TEC 111 Applied Math I /3 cr. hrs./3 periods (3 lec.)**

Introduction to numerical operations in measurement and systems of units. Includes geometric figures, waveshapes, scale drawings, collection of data, display of data, and data calculations. Also includes basic algebraic and numeric expressions, scientific notation, and instruction on using the handheld calculator.

Will not be offered this year

**TEC 111A Applied Math I: Module A /1 cr. hr./1 period (1 lec.)**

Module A constitutes approximately the first one-third of TEC 111.

Information: TEC 111A, 111B, and 111C together constitute TEC 111.

Will not be offered this year

**TEC 111B Applied Math I: Module B /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): TEC 111A.

Module B constitutes approximately the second one-third of TEC 111.

Information: TEC 111A, 111B, and 111C together constitute TEC 111.

Will not be offered this year

**TEC 111C Applied Math I: Module C /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): TEC 111B.

Module C constitutes approximately the third one-third of TEC 111.

Information: TEC 111A, 111B, and 111C together constitute TEC 111.

Will not be offered this year

**TEC 112 Applied Math II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TEC 111 or MAT 092 or satisfactory score on the mathematics assessment test.

Continuation of TEC 111. Includes linear equations, functional notation, quadratic equations, logarithms, complex numbers, and basic analytic geometry. Also includes many examples and exercises pertaining to electrical, magnetic, fluidic, thermal, mechanical, and chemical systems.

Offered: Fall/Spring/Summer

**TEC 112A Applied Math II: Module A /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): TEC 111 or MAT 092 or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-third of TEC 112.

Information: TEC 112A, 112B, and 112C together constitute TEC 112.

Offered: Fall/Spring/Summer

**TEC 112B Applied Math II: Module B /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): TEC 112A.

Module B constitutes approximately the second one-third of TEC 112.

Information: TEC 112A, 112B, and 112C together constitute TEC 112.

Offered: Fall/Spring/Summer

**TEC 112C Applied Math II: Module C /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): TEC 112B.

Module C constitutes approximately the third one-third of TEC 112.

Information: TEC 112A, 112B, and 112C together constitute TEC 112.

Offered: Fall/Spring/Summer

**TEC 113 Problem Solving for Electronics and Optics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 122 or TEC 112 or satisfactory score on the mathematics assessment test.

Problem solving for electronics and optics. Includes basic trigonometry and complex numbers used in AC circuit theory, logarithmic and exponential functions, basic mathematical formulae pertaining to fundamental understanding of optics, basic optics math such as Snell's law, Malus' law, Brewster's law, critical angle calculations, total internal reflection, and numerical aperture.

Offered: Fall/Spring/Summer

**TEC 114 Mathematics for Optics /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): TEC 113.

Basic mathematical formulae pertaining to fundamental understanding of optics. Includes college algebra and trigonometric functions. Also includes basic optics math such as Snell's law, Malus' law, Brewster's law, critical angle calculations, total internal reflection and numerical aperture.

Will not be offered this year

**TEC 116 Optical Shop Protocol and Inspection Standards /2 cr. hrs./3 periods (1 lec., 2 lab)**

Typical procedures and safety requirements of the optical industry. Includes terminology used in the field of optics pertaining to ISO and mil specifications, safe handling of optical components and assemblies, lasers, lamps, power devices, sharp edges, equipment, and protective eye wear and clothing. Also includes identifying optical components and coatings, clean room protocol, and proper handling of optical assemblies and equipment.

Will not be offered this year

**TEC 117 Optical Assembly Techniques /3 cr. hrs./4 periods (2 lec., 2 lab)**

Recommended: TEC 116.

Fundamental procedures used during the assembly of optical equipment. Includes use of epoxies and special adhesives during assembly, basic vibration isolation, mounting techniques, inspection of incoming sub-assemblies, and proper methods of disassembly. Also includes thermal and vibrational considerations as applied to assembly of systems.

Offered: Fall/Spring

**TEC 121/121LB Basic Electric and Magnetic Properties /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): TEC 101 and 112, or consent of instructor.

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.

Offered: Fall/Spring

**TEC 121A Basic Electric and Magnetic Properties: Module A / 2 cr. hrs./3 periods (1.5 lec., 1.5 lab)**

*Prerequisite(s):* TEC 101 and 112, or consent of instructor.

Module A constitutes approximately the first one-half of TEC 121.

*Information:* TEC 121A and 121B together constitute TEC 121.

*Offered:* Fall/Spring

**TEC 121B Basic Electric and Magnetic Properties: Module B / 2 cr. hrs./3 periods (1.5 lec., 1.5 lab)**

*Prerequisite(s):* TEC 121A.

Module B constitutes approximately the second one-half of TEC 121.

*Information:* TEC 121A and 121B together constitute TEC 121.

*Offered:* Fall/Spring

**TEC 122/122LB Applied Semiconductor Devices /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 113, TEC 121 and 151.

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.

*Offered:* Fall/Spring/Summer

**TEC 123/123LB Digital Circuits and Computers /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 101

Introduction to the theory, operation, and application of digital components used in combinational and sequential logic. Includes memory, error detection, convertors, and basic microprocessors. Also includes digital test equipment, measurements, tests on digital components and circuits, technical data, applications notes, specifications for digital components, and microprocessor applications.

*Offered:* Fall/Spring/Summer

**TEC 124 Modern Electronic Communications /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 113, TEC 121 and 151.

*Recommended:* Concurrent enrollment in TEC 122.

Introduction to electronic communication circuits and methodologies in transmitters and receivers. Includes construction, measurement, and troubleshooting of modern electronic communications circuits and components. Also includes safety and FCC regulations.

*Will not be offered this year*

**TEC 125/125LB AC Networks with Phasors /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 113, 121, 151.

Applications of trigonometry and the algebra of complex numbers to AC circuit 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.

*Offered:* Fall/Spring/Summer

**TEC 126 Electronics Construction and Assembly /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* TEC 113, TEC 121.

Basic skills required working on electronic equipment. Includes assembly techniques, soldering and de-soldering, printed circuit board fabrication, wire wrapping and cable construction. Also includes discussion of basic hand tools, machine shop, and power tools, and shop safety.

*Offered:* Fall/Spring

**TEC 127 Printed Circuit Board Solder Assembly /3 cr. hrs./5 periods (1 lec., 4 lab)**

Procedures and skills required for assembling components and for high reliability soldering of these components on printed circuit boards to appropriate military specifications. Includes defect recognition, component preparation, component recognition, installation and high reliability soldering of these components to a printed circuit board.

*Offered:* Fall/Spring

**TEC 128/128LB Electronic Measurements /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* TEC 122, 125, 171.

Techniques to perform AC and DC measurements on passive and active component circuits. Includes the use of a variety of measuring devices such as recorders, transducers, audio and radio frequency generators, frequency counters, spectrum analyzers, distortion analyzers, with emphasis on oscilloscope operation.

*Offered:* Fall/Spring

**TEC 130/130LB Computer Assembly and Testing /4 cr. hrs./5 periods (3 lec., 2 lab)**

Computer system assembly, set-up, and start-up. Includes building a personal computer, installing the circuit boards, power supply, and disk drives. Also includes system testing and trouble shooting, configuring for different operating systems, tools and equipment safety, use of diagnostic and support software, peripheral connections, and component replacement.

*Offered:* Fall/Spring/Summer

**TEC 132/132LB Computer Systems Servicing /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 130, 160.

Advanced computers servicing and peripheral 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.

*Offered:* Fall/Spring/Summer

**TEC 140 Geometric Optics /2 cr. hrs./2 periods (2 lec.)**

*Corequisite(s):* TEC 114.

Exploration of how light moves through an optical system. Includes reflection, refraction, elimination of stray reflections, ray trace diagrams, and measurement of para-axial parameters using the nodal slide method. Also includes application of geometric optics to eye glasses, telescopes, periscopes, binoculars, photographic equipment and projection systems. *Information:* Coupled with Wave Optics, provides a basis for all 200 level courses in optics.

*Offered:* Fall/Spring/Summer

**TEC 141 Wave Optics /3 cr. hrs./3 periods (3 lec.)**

*Corequisite(s):* TEC 286.

Exploration of the wavelike nature of light and how light interacts with matter. Includes concepts related to the dual nature of light, harmonic waves, propagation, polarization, interference effects, diffraction, coherence and Fourier optics.

*Information:* Coupled with Geometric Optics, forms the basis for all 200 level courses in optics.

*Offered:* Fall/Spring

**TEC 151 Information Transfer in Technology /2 cr. hrs./2 periods (2 lec.)**

Information transfer in metrology, data collection, data description, and analysis. Includes the representation of systems and processes, an introduction to components, symbols, and diagrams. Also includes the description of equipment and parts, the use of technical information sources, methods of troubleshooting, technical note-taking and technical telephone/computer communications.

*Will not be offered this year*

**TEC 160 Microcomputers and Programming Techniques /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* MAT 092 or TEC 111.

Introduction to microcomputer operation. Includes terminology, reading and understanding specifications, system start up, disk operations, programming simple electronic problems. Also includes an introduction to assembly language and number systems.

*Offered:* Fall/Spring

**TEC 170 Foundations of Improvement Technology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* MAT 092 or TEC 111 or satisfactory score on the mathematics assessment test.

Statistical thinking, systems thinking, psychology, and theory of knowledge for the continuous improvement of processes in technician training and work. Includes team dynamics, introductory control charting, and basic design of experiments concepts. Also includes techniques for teams to identify and prioritize improvement opportunities, represent and analyze important processes, and identify feasible routes to achieve improvement and excellence in technical training and work.

*Will not be offered this year*

**TEC 171 Statistical Process Control and Experimentation /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* TEC 113, 170.

Basic statistical control and experimentation for technicians. Provides tools for representing processes, methods for data collection, statistical data-descriptive devices, control charting, capability analyses, and elementary statistical experimental designs. Includes use of calculator and quality software.

*Offered:* Fall/Spring

**TEC 182 Fundamentals of Semiconductor Manufacturing Chemistry and Safety /3 cr. hrs./3 periods (3 lec.)**

Fundamentals of chemistry with emphasis on chemical safety in the semiconductor manufacturing workplace. Includes chemical principles, calculations, terminology, uses of chemicals, types of hazards, safeguards, regulations, and basic first aid.

*Will not be offered this year*

**TEC 221 Linear Devices /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* TEC 122, 125.

Linear devices in electronic systems. Includes operational amplifiers, measurement, specification, selection, troubleshooting, and theory of linear devices. Also includes power requirements and the means to obtain necessary power.

*Offered:* Fall/Spring

**TEC 222/222LB Electromechanical Devices and Systems /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 122, 125.

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.

*Offered:* Fall/Spring

**TEC 225/225LB Fluid Devices and Automated Systems /3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* TEC 123, 160.

Application and control of fluid devices using programmable logic devices. Includes microprocessors, software, ladder logic and diagrams, programmable logic controllers (PLCs), and a 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.

*Offered:* Fall/Spring

**TEC 226 Integrated Systems in Semiconductor Manufacturing /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 221, 222, 225, 272, and 273 and 274 or concurrent enrollment.

Integration of chemical, computer, electronic, electromechanical, fluidic, and optical components to duplicate or simulate systems in the semiconductor manufacturing workplace. Includes process analysis, technical communications, metrology and data collection, statistics, troubleshooting and team problem solving, safety, statistical process control and experimental design, system assembly, reliability, test, and cleanroom procedures.

*Will not be offered this year*

**TEC 227/227LB Communication and Information Transmission Systems /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 122, 124, 125, 171.

*Recommended:* TEC 123.

Introduction to electronic communications and information transmission. Includes technical properties, components, subsystems, specifications, adjustment, operation, maintenance, and troubleshooting of cable, RF point-to-point, laser, fiber, satellite, transponder, cellular, and computer systems.

*Will not be offered this year*

**TEC 228/228LB RF and Microwave Devices /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 221, 222, 227.

Properties, applications, measurements, and specifications of electronic communications components and systems at RF and microwave frequencies. Includes antennas, transmitting and modulating devices, interconnecting systems, antennas, satellite transceiving devices, and cellular telephone configurations.

*Will not be offered this year*

**TEC 229 Integrated Systems in Telecommunications /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 221, 222, 227, 228 or concurrent enrollment.

Overview of communications. Includes systems specifications, the ordering of materials, installation, operation, inventory, maintenance, repair, and documentation.

*Will not be offered this year*

**TEC 230/230LB Peer-To-Peer Networking and Network Cabling Fundamentals/4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 132 or consent of instructor.

Introduction to basic networking concepts and cabling standards. Includes the OSI model of networking, types of networking, multi-user VS single-user programs, network security, type of connections, and type of cabling.

*Offered:* Fall/Spring/Summer

**TEC 232/232LB Dedicated Server Networks /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 230.

Dedicated file server networking technology using industry standard network operating systems. Primary NOS includes NetWare server installation, configuration, maintenance, and operation. Also includes installation of network interface card, user accounts, directories, backups, permissions, printer servers, printer queues, printer definitions, printer configurations, and remote printing.

*Offered:* Fall/Spring

**TEC 234/234LB Microcomputer Repair /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s):* TEC 122, 123, 124, 125, and 132.

Repair and replacement of microcomputer components. Includes microprocessors and system architecture. Also includes tools, test equipment, handshaking, and troubleshooting.

*Offered:* Fall/Spring

**TEC 235 Interconnecting Network Devices /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* TEC 132.

Focus on installation and usage of switches and routers connected in local-area networks (LANs) and wide-area networks (WANs) at small to medium network sites. Includes introduction to networks, cabling, Cisco IOS, interconnecting catalyst switches, interconnecting Cisco routers, and extending the network to WANs.

*Offered:* Fall/Spring

**TEC 236 Underpinnings of the Internet /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* TEC 160.

Introduction to the Internet, web servers, and its related services. Includes development of the Internet, connecting to the Internet, file transfer protocol (FTP) and Telnet, electronic mail - the basic Internet tool, hypertext and the World Wide Web, creating web documents in HTML, and web servers

*Offered:* Fall/Spring

**TEC 237/237LB Contemporary Client/Server Computing /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* TEC 232, 235.

Introduction to client/server computing. Includes history and overview of client/server computing, client/server building blocks, clients, servers, and operating systems, users, groups, profiles, and policies, server resources, sequential query language database servers, and client server groupware.

*Offered:* Fall/Spring

**TEC 239 UNIX/Linux Support and Service/ 4 cr. hrs./6 periods (2 lec./4 lab)**

*Prerequisite(s):* TEC 230

Introduction to UNIX/Linux maintenance, operation, connectivity, and administrative functions with main emphasis on hardware and troubleshooting techniques. Also includes security, commands, and file systems.

*Offered:* Fall/Spring

**TEC 250/250LB Digital Devices /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s):* TEC 122, 123.

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.

*Offered:* Fall/Spring

**TEC 251 Analog Circuits /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* TEC 250 or concurrent enrollment, and TEC 221.

Advanced analog circuits used in current digital systems. Includes power supplies, power failure, surge protection, and power amplifiers.

*Offered:* Fall/Spring

**TEC 255 Microprocessors I /4 cr. hrs./6 periods(3.0 lec/3.0 lab)**

*Prerequisite(s):* TEC 160 and 250

Microprocessor operation. Including memory, MPU, fetch- execute sequence, and addressing modes. Also includes microprocessor architecture, stack operations, double accumulator, subroutine instructions, flow-charting, programming, and algorithms.

*Will not be offered this year*

**TEC 256 Microprocessors II /4 cr. hrs./6 periods(3.0 lec./3.0 lab)**

*Prerequisite(s):* TEC 255

In-depth study of microprocessor interfacing applications. Includes programmable interface devices, serial data communications, memory, programmable timers, A/D and D/A converter interfacing, control devices/circuits, and troubleshooting.

*Will not be offered this year*



**TEC 272 Semiconductor Manufacturing Processes I /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* TEC 103, 171, 182.

Study of semiconductor manufacturing. Includes crystal growth, wafer preparation, wafer fabrication, oxidation, diffusion and ion implantation with attention to affiliated processes, equipment, materials, key concepts, measurements, safety, contamination control, tests, and terminology.

*Offered:* Fall/Spring**TEC 273 Semiconductor Manufacturing Processes II /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* TEC 272.

Continuation of TEC 272. Includes photolithography (photomasking and etching), deposition, packaging, wafer test, evaluation, and process yields with attention to affiliated processes, equipment, materials, key concepts, measurements, safety, contamination control, tests, and terminology.

*Will not be offered this year***TEC 274/274LB Vacuum Systems and Power RF /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* TEC 122, 125, 182, 225.

Basic gas laws, theory, definitions, and applications of power RF in manufacturing industries, particularly semiconductor manufacturing. Includes pumps, vacuum gauges, measurement, lead detection, safety in high vacuum environments, troubleshooting, and RF generation and transmission. Also includes materials and components, plasmas, plasma etching systems, cleaning and other vacuum lab procedures.

*Offered:* Fall/Spring**TEC 284 Calibration of Optical Systems /3 cr. hrs./5 periods (1 lec., 4 lab)***Corequisite(s):* TEC 141.

Applications of specialized equipment and analytical procedures for performance evaluation and calibration of optical systems in the optics industry. Includes radiometric entities and figures of merit used to describe system performance, NIST traceability for radiation standards and associated hardware. Also includes use of point sources, Jones sources, extended area sources, and collimated sources related to use in calibration, measurement of noise and statistical methods of noise cancellation to improve signal to noise ratios.

*Offered:* Fall/Spring**TEC 286 Fiber Optics Installation and Testing /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* TEC 141 or concurrent enrollment.

Installation and use of optical fibers and related equipment in the optical industry. Includes procedures such as terminating and coupling of fiber, comparison of fiber types, and testing of fibers to see if the coupling and terminations are within specifications. Also includes applications of fiber optics, such as their use in medicine, communications, aviation and imaging devices.

*Offered:* Fall/Spring**TEC 287 Laser Fundamentals /3 cr. hrs./4 periods (2 lec., 2 lab)***Prerequisite(s):* TEC 141.

Lasers and how they are built and used in industry. Includes the principles of laser operation, characteristics of laser light, and safe handling and servicing of lasers. Also includes some basic quantum mechanics, cavity design, unit assembly techniques, and use of high voltage power supplies needed for lasers to operate.

*Offered:* Fall/Spring**TEC 288 Optical Testing /4 cr. hrs./6 periods (2 lec., 4 lab)***Prerequisite(s):* TEC 141.

Use of common techniques and equipment for the testing of optical systems and components. Includes how interferometry and various profilers are used to examine surface features. Also includes other, non-interferometric tests and examination of the theory behind each.

*Offered:* Fall/Spring**TEC 290 Technology Education Field Experience /1-6 cr. hrs./5-30 periods (5-30 lab)***Prerequisite(s):* Consent of instructor.

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:* May be taken two times for a maximum of six credit hours.*Offered:* Fall/Spring/Summer**THEATER**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**THE 103 Voice and Movement for the Actor I /1 cr. hr./2 periods (2 lab)**

Principles and practice of beginning voice and movement skills for the actor. Includes phonetics, physical isolation and awareness exercises.

*Information:* May be taken two times for a maximum of two credit hours.*Offered:* Fall/Spring**THE 104 Voice and Movement for the Actor II /1 cr. hr./2 periods (2 lab)***Prerequisite(s):* THE 103.

Continuation of THE 103. Includes development and practice of stage dialects and physicalization of character.

*Information:* May be taken two times for a maximum of two credit hours.*Offered:* Fall/Spring**THE 105 Theater Appreciation /3 cr. hrs./3 periods (3 lec.)***Prerequisite(s):* WRT 100 or 101 or 102.

Survey of the nature and history of theater. Includes play production as an art form and multicultural media of communication. Also includes basic elements of production, the roles of key personnel from playwrights to critics, major forms and examples of dramatic literature, varied acting styles, and trends in modern theater.

*Information:* Students are expected to attend and critique three theatrical performances. Students may also be required to participate in PCC theater productions for additional credit.

*Offered:* Fall/Spring**THE 109 Introduction to Chicano Theater Arts /2 cr. hrs./3 periods (1 lec., 2 lab)***Recommended:* Knowledge of the Spanish language.

Survey of the use of Chicano theater as a tool for social change in the United States from the 1960's to the present. Includes introduction to acting and performance techniques, analysis and readings from significant Chicano theater pieces, and examination of Chicano theater elements such as play structure, dramatic forms, techniques and styles.

*Will not be offered this year***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.)***Corequisite(s):* THE 113.

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.

*Offered:* Fall/Spring**THE 113 Stagecraft Crew /1 cr. hr./3 periods (3 lab)***Corequisite(s):* THE 111.

Preparing, organizing, setting up, running and shifting of theatrical sets, properties and costumes for approved theatrical productions.

*Information:* May be taken three times for a maximum of three credit hours.*Offered:* Fall/Spring**THE 115 Make-up /1 cr. hr./2 periods (2 lab)**

Principles and practice of straight and character make-up under various conditions. Includes special effects, clown make-up and principles of mask-making.

*Offered:* Fall**THE 118 Basic Theater Graphics /3 cr. hrs./3 periods (3 lec.)**

Principles and practice of graphic skills necessary in the planning of theatrical productions. Includes drafting and mechanical drawing, perspective drawing, and watercolor painting techniques.

*Offered:* Spring**THE 125 Theater Production /2 cr. hrs./6 periods (6 lab)***Prerequisite(s):* Consent of instructor.

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.

*Offered:* Fall/Spring

**THE 135 Stage Combat /2 cr. hrs./4 periods(1 lec./3 lab)**

A basic study in the execution of staged violence for practical use in theater productions. Includes unarmed fighting and armed combat.

*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 its origins to the late 18th century. Includes changes in theaters, stages and theatrical conventions, and representative plays from each period.

*Offered:* Fall

**THE 141 History of Theater Since the 18th Century /3 cr. hrs./ 3 periods (3 lec.)**

Survey of theater, drama and audiences from the 18th century to the present. Includes changes in theaters, stages and theatrical conventions, and representative plays from each period.

*Offered:* Spring

**THE 149 Introduction to Acting I /3 cr. hrs./4 periods (2 lec., 2 lab)**

Introduction to performance techniques and the development of physical skills for effective performance. Includes techniques of acting and characterization.

*Offered:* Fall/Spring

**THE 151 Introduction to Acting II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* THE 103 or concurrent enrollment, and THE 149.

Continuation of THE 149. Includes methods of developing and projecting a character's physical scope, emotional inner life, and the employment of subtext (unspoken thoughts) in performances. Also includes techniques for character and script analysis.

*Offered:* Fall/Spring

**THE 210 Screen Acting /2 cr. hrs./2 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.)**

*Corequisite(s):* Concurrent enrollment in THE 222.

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.

*Offered:* Fall

**THE 222 Stage Lighting Crew /1 cr. hr./3 periods (3 lab)**

*Corequisite(s):* Concurrent enrollment in THE 220.

Organizing, setting up and operating of stage lighting for approved theatrical productions.

*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.

*Will not be offered this year*

**THE 245 Principles of Dramatic Structure /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Consent of instructor.

Examination of the structural elements of major dramatic forms and styles. Includes reading and viewing of representative plays and analysis of their structures in relationship to modes of presentation and the resulting effects.

*Offered:* Fall/Spring

**THE 250 Intermediate Acting I /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* THE 103 and 111 or concurrent enrollment, and THE 149.

Theory and practice of creating sustained and logical character portrayals using all types of dramatic literature from various cultures. Includes rehearsal and performances of scenes in representational and presentation styles and practice in auditioning techniques.

*Offered:* Fall

**THE 251 Intermediate Acting II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s):* THE 104 and 111 or concurrent enrollment, and THE 151 or 250.

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.

*Offered:* Spring

**THE 296 Independent Studies in Theater /1-4 cr. hrs./3-12 periods (3-12 lab)**

*Prerequisite:* Consent of instructor

Students work at various assigned tasks in theatrical settings under the guidance of an instructor. Includes the opportunity for the student to design his/her own project with the instructor's approval.

*Information:* May be taken eight times for a maximum of eight credit hours.

*Offered:* Fall/Spring

## TOHONO O'ODHAM

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**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:* Fall

**THO 102 Elementary Tohono O'odham II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* THO 101.

Continuation of THO 101. Includes increased proficiency in listening, speaking, reading, and writing. Includes continued study of Tohono O'odham cultural traditions.

*Offered:* Spring

**THO 106 Beginning Tohono O'odham Conversation I /4 cr. hrs./ 4 periods (4 lec.)**

Introduction to conversational Tohono O'odham. Includes O'odham culture and history, basic alphabet pronunciation, basic greetings, basic interpersonal transactions, and cultural perspectives.

*Will not be offered this year*

**THO 106A Beginning O'odham Conversation: Module A /2 cr. hrs./2 periods (2 lec.)**

Introduction to conversational Tohono O'odham. Includes O'odham culture and history, basic alphabet pronunciation, basic greetings, basic interpersonal transactions, and cultural perspectives.

*Information:* THO 106A and 106B together constitute THO 106.

*Will not be offered this year*

**THO 106B Beginning O'odham Conversation: Module B /2 cr. hrs./2 periods (2 lec.)**

Introduction to conversational Tohono O'odham. Includes O'odham culture and history, basic alphabet pronunciation, basic greetings, basic interpersonal transactions, and cultural perspectives.

*Information:* THO 106A and 106B together constitute THO 106.

*Will not be offered this year*

**THO 107 Beginning Tohono O'odham Conversation II /4 cr. hrs./ 4 periods (4 lec.)**

*Prerequisite(s):* THO 106 or equivalent.

Continuation of THO 106. Includes oral and written communication, grammatical structures, additional interpersonal transactions, and additional cultural perspectives.

*Offered:* Fall/Spring/Summer

## TOHONO O'ODHAM CULTURE

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**TOC 150 Tohono O'odham Food Systems /3 cr. hrs./3 periods (3 lec.)**

Overview of Tohono O'odham food systems. Includes pre-encounter methods of farming, hunting, and food gathering. Also includes an exploration of current methods of cultivation, effects of food subsidy programs on traditional diet, and cultural importance of these food systems in the past and present time.

*Will not be offered this year*

**TOC 151 Tohono O' odham Writing Systems /1 cr. hr./1 period (1 lec.)**  
History of the development of Tohono O' odham writing systems. Includes the three existing systems and sounds and symbols of the language. Also includes the Alvarez-Hale writing system.  
*Will not be offered this year*

## TOPICS COURSES

### TOPICS COURSES

Courses designated with the numbers 098, 198, 298 are courses created by a Pima 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 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

## TRANSLATION STUDIES

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

### **TRS 101 Introduction to Translation /4 cr. hrs./4 periods (4 lec.)**

Principles and procedures for the translation of written materials. Includes an introduction to translation, translation preparation, translation procedures, basics of grammar in the target languages English and Spanish, translator ethics and protocol, legal/quasi-legal translation, business/commercial translation, literary translation, and health care translation.  
*Offered: Fall*

### **TRS 102 Spanish for Translation /4 cr. hrs./4 periods (4 lec.)**

Analysis of the Spanish language from the translator's point of view. Includes the structure of Spanish, cultural and stylistic components, paragraph and document development, mechanics and punctuation for editing, and writing resources.  
*Offered: Spring*

### **TRS 103 English for Translation /4 cr. hrs./4 periods (4 lec.)**

Analysis of the English language from the translator's point of view. Includes the structure of English, cultural and stylistic components, paragraph and document development, mechanics and punctuation for editing, and writing resources.  
*Offered: Spring*

### **TRS 120IN Technology for Translation and Interpretation /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s): TRS 101, CSA 101 or computer applications experience.*  
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.

*Information:* IN is the integrated version of the course with the lecture and lab taught simultaneously.  
*Offered: Fall*

### **TRS 150 Survey of Translation Specialty Areas /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): TRS 102, 103.*

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: Fall*

### **TRS 160 Translation in Specialty Areas /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): TRS 120, 150.*

Principles and procedures for translating specialty area materials. Includes health care, legal, commercial/business, and literary translation exercises.  
*Offered: Spring*

### **TRS 290 Practicum in Specialty Area Translation /4 cr. hrs./16 periods (1 lec., 15 lab)**

*Prerequisite(s): TRS 160.*

Engaging in a specialty area internship to produce a translated product. Includes agency/individual sponsor, internship goals, portfolio project, and on-site or supervised training.  
*Offered: Fall*

### **TRS 297 Translation Studies Seminar /2.5-4 cr. hrs./2.5-16 periods (.25-4 lec., .25-12 lab)**

*Prerequisite(s): Consent of instructor.*

Translation studies job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.  
*Offered: Fall/Spring*

## TRAVEL INDUSTRY OPERATIONS

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

### **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*

### **TVL 102 Computerized Reservation Systems I /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*

### **TVL 103 Geography for Travel Professionals I /3 cr. hrs./3 periods (3 lec.)**

Examination of major tourist destinations. Includes physical geography, and North and South America.  
*Offered: Fall/Spring*

### **TVL 104 Geography for Travel Professionals II /3 cr. hrs./3 periods (3 lec.)**

Examination of major tourist destinations. Includes physical geography, Europe, Africa, Asia and Oceania.  
*Offered: Fall/Spring*

### **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*

### **TVL 120 Leisure and Society /3 cr. hrs./3 periods (3 lec)**

Overview of recreation and leisure, and their role in contemporary society. Includes the history of leisure and work, theoretical perspectives, contemporary factors affecting leisure and play, ethics, conceptualizing leisure, role of leisure and recreation in society, and leisure services as a profession.  
*Will not be offered this year*

### **TVL 121 Travel Sales /3 cr. hrs./4 periods (3 lec., 1 lab)**

*Prerequisite(s): TVL 109.*

Sales techniques in the travel industry. Includes phone and listening skills, sales techniques, client behavior styles, closing the sale, legal aspects of the travel industry, and outside sales.  
*Offered: Will not be offered this year*

### **TVL 199 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): Concurrent enrollment in TVL 199WK Co-op Work and minimum of 12 credit hours of Travel Industry (TVL) courses or one year of related work experience.*

See Cooperative Education section for description.

*Information:* May be taken two times for a maximum of two credit hours.  
*Will not be offered this year*

### **TVL 199WK Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s): Concurrent enrollment in TVL 199WK Co-op Work and minimum of 12 credit hours of Travel Industry (TVL) courses or one year of related work experience.*

See Cooperative Education section for description.

*Information:* May be taken two times for a maximum of sixteen credit hours.  
*Will not be offered this year*

**TVL 203 Computerized Reservation Systems II: Fares and Ticketing / 3 cr. hrs./5 periods (2 lec., 3 lab)**

*Prerequisite(s):* TVL 102.

Continuation of TVL 102. Includes advanced pricing, supplier pricing, ticketing, and Sabre's TIMATIC function.

*Will not be offered this year*

**TVL 205 Tourism Marketing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* TVL 101.

Concepts of hospitality and travel marketing. Includes consumer behavior, research and environment, strategies, and marketing elements.

*Offered:* Fall/Spring

**TVL 210 Leisure Delivery Systems /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* TVL 120.

Introduction to development, management, and organization of the leisure services profession. Includes the significance of leisure and tourism in society, leisure and tourism as a profession, delivery systems, and organizational management.

*Will not be offered this year*

**TVL 211 Tour Group Development /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* TVL 101 and/or one year of experience working in the hospitality-tourism industry.

Introduction to the basic principles of guiding tours. Includes principles of tour group handling, tour group planning, introduction to desert ecology, geology, and history of Southwest, and public speaking for the tour guide.

*Will not be offered this year*

**TVL 214 Destination Development /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* TVL 101 and 205 or concurrent enrollment.

Principles of tourism planning. Includes demographics, supply components, infrastructure, superstructure and hospitality resources, marketing, planning, and tourism demand components.

*Will not be offered this year*

**TVL 250 Leadership in Recreation and Tourism /3 cr. hrs./3 periods (3 lec.)**

Principles and strategies of leadership as applied to recreational and tourism settings. Includes leisure services, leadership, planning and evaluation, and communication skills.

*Will not be offered this year*

**TVL 290 Field Work /3-6 cr. hrs./15-30 periods (15-30 lab)**

*Prerequisite(s):* Consent of instructor.

Field experience providing the opportunity to apply course work in a planned and supervised recreational or tourism setting.

*Information:* May be taken two times for a maximum of six credit hours.

*Will not be offered this year*

**TVL 296 Independent Study in Travel/Tourism /1-3 credits/ 1-3 periods (1-3 lec.)**

*Prerequisite(s):* Consent of instructor.

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.

*Will not be offered this year*

**TVL 297 Travel Industry Seminar /.25-4 cr. hrs./25-16 periods (.25-4 lec., .25-12 lab)**

*Prerequisite(s):* Consent of instructor.

Travel industry job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Will not be offered this year*

**TVL 299 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Concurrent enrollment in TVL 299 Co-op Work, and minimum of 15 credit hours of Travel Industry (TVL) courses or one year of related work experience.

See Cooperative Education section for description.

*Information:* May be taken two times for a maximum of two credit hours.

*Will not be offered this year*

**TVL 299WK Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)**

*Prerequisite(s):* Concurrent enrollment in TVL 299 Co-op Related Class, and minimum of 15 credit hours of Travel Industry (TVL) courses or one year of related work experience.

See Cooperative Education section for description.

*Information:* May be taken two times for a maximum of sixteen credit hours.

*Will not be offered this year*

**TRIBAL GOVERNMENT**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**TRB 101 Tribal Law I /3 cr. hrs./3 periods (3 lec.)**

Legal problems specific to American Indians and tribes. Includes the nature and scope of Indian law, federal Indian law and policy, the special federal-tribal relationship, Indian tribal governments, Indian tribal sovereignty, and the jurisdictional framework in Indian country.

*Will not be offered this year*

**TRB 102 Tribal Law II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* TRB 101.

Legal problems special to American Indians and tribes. Includes criminal, civil, tax, and regulatory jurisdiction in Indian country, rights of individual Indians, tribal economic development and Indian water, fishing and hunting rights and gaming.

*Will not be offered this year*

**TRUCK DRIVER TRAINING**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**TD 101 Introduction to Trucking and First Aid /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Overview and introduction to the operation of a tractor-trailer and basic first aid. Includes an overview of the history of trucking, control systems, vehicle systems, coupling and uncoupling, CPR and first aid, over the road management, and the process to follow in the job search.

*Offered:* Fall/Spring/Summer

**TD 102 Driver Challenges and Air Brake System /3 cr. hrs./ 3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Operation of the tractor-trailer and the practices required to meet financial obligations. Includes visual search and communications, basic control, speed and space management, pre-trip inspection, extreme driving, emergency maneuvers, air brakes, preventative maintenance, shifting, backing, accident procedures, money, management, and special rigs and refrigerated trailers.

*Offered:* Fall/Spring/Summer

**TD 103 Introduction to Hours of Service and Department of Transportation Regulations /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Handling responsibilities that do not involve operating a vehicle. Includes hours of service requirements, trip planning, and team logs.

*Offered:* Fall/Spring/Summer

**TD 104 Hazardous Materials and the Department of Transportation Regulations /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Laws governing the transportation industry. Includes night operations, hazardous materials, Department of Transportation rules and regulations, and environment.

*Offered:* Fall/Spring/Summer

**TD 105 Defensive Driving and Cargo Handling /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Procedures for handling potentially dangerous situations and for handling of cargo. Includes visual search, hazard perception, satellite communication, electronic engines, driver safety, and cargo handling and documentation.

*Offered:* Fall/Spring/Summer

**TD 106 Pre-Trip and Backing Skills /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Vehicle inspection and backing a tractor-trailer. Includes pre-trip inspection, backing, straight line, 45° dock/offset, parallel park, serpentine, and visual search.

*Offered:* Fall/Spring/Summer



**TDT 107 Basic Control /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Building of skills required to maneuver a tractor-trailer. Includes engine start, instrument scan, proper gear start, steering position, mirror checks, rpm/range control, up shift progressive, down shift, double clutch, smooth braking, set parking brake, right hand turn, and left hand turn.

*Offered:* Fall/Spring/Summer

**TDT 108 Proficiency Development /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Introduction to safe driving techniques. Includes skip and shift recovery, visual and traffic checks, speed management, lane control and change, merge and exit freeway, space management, and use of signals and horn.

*Offered:* Fall/Spring/Summer

**TDT 109 Extreme Driving Conditions /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Advanced techniques of control and safe driving. Includes uphill start and roll back, up and down hill upshift, up and down hill downshift, adverse condition, curve and passing control,

*Offered:* Fall/Spring/Summer

**TDT 110 Introduction to Externship /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Overview and introduction to the operation of the company that will administer the externship of the trainee truck driver. Includes history of the company, company policies, and procedures for dispatch, payroll, insurance, requirements for logging, trip reporting, and paperwork.

*Offered:* Fall/Spring/Summer

**TDT 112 Preparation for the Commercial Driver's License Exam / 3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Information to prepare trainees to pass the Commercial Driver's License exam and a class A permit. Includes air brakes, pre-trip inspection, combination vehicle, and hazardous materials. Also includes information to manage speed effectively and respond to various road and weather conditions.

*Will not be offered this year*

**TDT 113 Operation of a Tractor-Trailer /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Techniques for the safe and efficient operation of a tractor-trailer. Includes coupling and uncoupling, backing, hazard perception, cargo handling, rules and regulations, hours of service, and trip planning and hours of service.

*Will not be offered this year*

**TDT 114 Inspect and Operate a Tractor-Trailer /1 cr. hr./3 period (3 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Basic skills to inspect and operate a tractor-trailer safely. Includes pre-trip inspection, backing, basic control, visual search, progressive shifting, and communication.

*Will not be offered this year*

**TDT 115 Safe Driving Techniques /1 cr. hr./3 period (3 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Safe driving techniques while developing driving proficiency. Includes space management, extreme driving, speed management, and hazard perception.

*Offered:* Will not be offered this year

**TDT 116 Straight Truck and Bus Driver /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Information to prepare the trainees to pass the Commercial Driver's License exam and obtain a Class "B" permit. Includes CDL preparation, driving conditions, pre-trip inspection, air brakes, hazardous materials, and city map reading, hours of service, backing, cargo handling, and transporting passengers.

*Will not be offered this year*

**TDT 117 Straight Truck and Bus Driver: Road and Range /1 cr. hr./3 period (3 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American

*Institute of Technology.*

Techniques for the inspection and safe operation of a straight truck or bus. Includes pre-trip inspection, backing, basic control of left and right turns, progressive shifting, proficiency development, space and speed management, visual search and communication, extreme driving, and hazard perception.

*Will not be offered this year*

**TDT 118 Basic Vehicle Operations and Commercial Driver's License Req. /5 cr. hrs./5 periods (5 lec.)**

*Prerequisite:* Meet Admission Requirements as outlined by the Truck Driver Training Program.

Basic methods of safely operating a combination vehicle. Includes the operation of the air brake system and uncoupling a tractor and trailer, cargo handling including hazardous materials, the proper method of conducting a pre-trip inspection, completion of braking maneuvers, and trip planning. Familiarization of the USDOT regulations including hours of service and Commercial Driver's Licensing requirements. Also includes method of managing life as a professional driver, managing speed effectively and responding to road and weather conditions.

*Offered:* Fall/Spring/Summer

**TDT 119 Basic Driving Maneuvers /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Successful completion of TDT 118.

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 CDL license skill examination.

*Offered:* Fall/Spring/Summer

**TDT 190 Truck Driver Training: Externship /3 cr. hrs./15 periods (15 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Measured development of the entry-level driver and the employing company's achievement in promoting the new driver from trainee to solo operations. Includes objectives and guidelines to establish uniform progress, methodology, and the measurement of the essential skills necessary to all drivers.

*Will not be offered this year*

**TDT 190A Truck Driver Training Externship: Module A /1 cr. hr./1 period (1 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Overview of truck driver training in an externship format. Includes primary training goals and an assessment of initial qualifications.

*Offered:* Fall/Spring/Summer

**TDT 190B Truck Driver Training Externship: Module B /1 cr. hr./1 period (1 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Overview of truck driver training in an externship format. Includes training the new driver, training materials, documentation of where to train, variety of driving experiences and conditions, vehicles and other equipment documentation, and duration of training. Also includes progressive advancement in skills and knowledge, specific training exercises, and periodic evaluation and remedial training for problem areas.

*Offered:* Fall/Spring/Summer

**TDT 190C Truck Driver Training Externship: Module C /1 cr. hr./1 period (1 lab)**

*Prerequisite(s):* Meet admission requirements as outlined by the American Institute of Technology.

Overview of truck driver training in an externship format. Includes initial competencies, control systems, instruments, inspections, and basic vehicle control.

*Offered:* Fall/Spring/Summer

**VETERINARY TECHNOLOGY**

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**VET 100 Introduction to Veterinary Technology /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Admission to the Veterinary Technology program.

Introduction into the role of the veterinary technician in the veterinary medicine profession. Includes 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.

*Offered: Fall*

**VET 110 Veterinary Nursing Procedures I /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): Admission to the Veterinary Technology program.*

*Corequisite(s): Concurrent enrollment in VET 100, 130, 225.*

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.

*Offered: Fall*

**VET 111 Veterinary Nursing Procedures II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 100, 110, 130, 225.*

*Corequisite(s): Concurrent enrollment in VET 120, 131, 150.*

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.

*Offered: Spring*

**VET 120 Clinical Pathology I /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 100, 110, 130, 225.*

*Corequisite(s): Concurrent enrollment in VET 111, 131, 150.*

Introduction to clinical pathology. Includes pathology terminology, basic laboratory procedures and specimen collection and preservation. Also includes basic use and care of microscopes.

*Offered: Spring*

**VET 121 Clinical Pathology II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 111, 120, 131, 150.*

*Corequisite(s): Concurrent enrollment in VET 200, 210.*

Continuation of VET 120. Includes review of laboratory procedures, urinalysis, and cytologic evaluations. Also includes pathogens, parasites, and hematologic evaluations.

*Offered: Fall*

**VET 130 Animal Anatomy and Physiology I /4 cr. hrs./6 periods (3 lec., 3 lab)**

*Prerequisite(s): Admission to the Veterinary Technology program.*

*Corequisite(s): Concurrent enrollment in VET 100, 110, 225.*

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.

*Offered: Fall*

**VET 131 Animal Anatomy and Physiology II /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 100, 110, 130, 225.*

*Corequisite(s): Concurrent enrollment in VET 111, 120, 150.*

Continuation of VET 130. Includes the study of the nervous, respiratory, reproductive systems and teeth. Also includes endocrine and urinary systems and principles of disease.

*Offered: Spring*

**VET 150 Pharmacology /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 100, 110, 130, 225.*

*Corequisite(s): Concurrent enrollment in VET 111, 120, 131.*

Introduction to regulations of biologics and pharmaceuticals. Includes classification, dosage calculations, labeling, logging and packaging of drugs.

*Offered: Spring*

**VET 191 Veterinary Technician Clinical Experience I /3 cr. hrs./12 periods (12 lab)**

*Prerequisite(s): Completion of the first year Veterinary Technology courses.*

Supervised five-week clinical experience, which will be conducted at local veterinary hospitals, clinics, laboratory, and zoo or research facilities.

*Offered: Summer*

**VET 200 Anesthetic and Surgical Nursing /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 111, 120, 131, 150.*

*Corequisite(s): Concurrent enrollment in VET 121, 210.*

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.

*Offered: Fall*

**VET 205 Radiology and Imaging Techniques /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 121, 200, 210*

*Corequisite(s): Concurrent enrollment in VET 211, 220*

Principles and techniques of radiographic imaging. Includes the production of X-rays, radiographic equipment, safety measures and radiographic quality. Also includes diagnostic radiographs, positioning of patients, darkroom techniques and X-ray processing.

*Offered: Spring*

**VET 210 Veterinary Nursing Procedures III /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s): VET 111, 120, 131, 150.*

*Corequisite(s): Concurrent enrollment in VET 121, 200.*

Continuation of VET 111. Includes both small and large animal topics, 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.

*Offered: Fall*

**VET 211 Veterinary Nursing Procedures IV /2 cr. hrs./3 periods (1 lec., 2 lab)**

*Prerequisite(s): VET 121, 200, 210.*

*Corequisite(s): Concurrent enrollment in VET 205, 220.*

Continuation of kennel responsibilities with an introduction to avian, exotic and laboratory animal care. Includes the care and management of laboratory animals, nursing procedures, preventative health care and restraint.

*Offered: Spring*

**VET 220 Clinical Pathology III /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): VET 121, 200, 210.*

*Corequisite(s): Concurrent enrollment in VET 211, 205.*

Summation of laboratory skills and techniques needed of the Veterinary Technician. Includes blood chemistry, bacteriologic and microbiologic procedures and necropsy.

**VET 225 Veterinary Hospital Procedures /3 cr. hrs./3 periods (3 lec.)**

*Corequisite(s): Concurrent enrollment in VET 100, 110, 130.*

Standard office procedures with an emphasis in client relations, education and computer skills. Includes ethics in veterinary medicine, state and federal regulations governing veterinarian practices and all aspects of clinical patient care.

*Offered: Fall*

**VET 291 Veterinary Technician Clinical Experience II /3 cr. hrs./12 periods (12 lab)**

*Prerequisite(s): Completion of all VET courses.*

Supervised five-week clinical experience which will be conducted at local veterinary hospitals, clinics, laboratory, and zoo or research facilities.

*Offered: Summer*

## WELDING

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**WLD 110 Basic Arc and Oxyacetylene Welding /3 cr. hrs./4 periods (2 lec., 2 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.

*Offered: Fall/Spring/Summer*

**WLD 115 Blueprint Reading/Estimating /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s): MAT 082 or satisfactory score on math assessment.*

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.

*Offered: Fall/Spring*

**WLD 119 Pattern Layout for Pipe Fabrication /3 cr. hrs./4 periods (2 lec., 2 lab)**

*Prerequisite(s): MAT 082 or satisfactory score on math assessment.*

Pattern layout techniques for pipe welding. Includes drawing equipment, basic mathematical concepts, parallel, radial, and triangulation line development, and special problems.

*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 buildup, arc welding safety practices, arc welding procedures, basic joint design, currents and polarities, arc welding machines and electrodes, and arc designing for sculpture.

*Offered: Fall/Spring/Summer*

**WLD 150 Oxyacetylene Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**  
Set up, procedures, and operation of oxyacetylene welding equipment. Includes safety, mild steel welding procedures, oxyacetylene welding equipment, welding joints, flame cutting, pipe and braze welding procedures, expansion and contraction, hardfacing, cast and galvanized iron, stainless steel, and silver soldering.

*Offered: Fall/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.

*Offered: Fall/Spring*

**WLD 161 SMAW Plate Certification Welding /2 cr. hrs./4 periods (1 lec., 3 lab)**

*Prerequisite(s): WLD 160, or welding industry experience.*  
Advanced procedures in test plate welding certification using the American Welding Society Code D1.1. Includes test codes, weld test coupon evaluation, preparation of test plates, V-groove test plate welding, and evaluation of proper welding procedures.

*Offered: Fall/Spring*

**WLD 250 Pipe Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Prerequisite(s): WLD 119, 160 or welding industry experience.*  
Principles and techniques of pipe welding. Includes classifications on performance testing, types of pipe, methods and preparation of pipe and miter joints, methods of joining pipe, and preparation and methods of welding test plate.

*Offered: Fall/Spring*

**WLD 261 Gas Metal Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Recommended: WLD 110 or welding industry experience.*  
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.

*Offered: Fall/Spring*

**WLD 262 Gas Tungsten Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

*Recommended: WLD 110 or welding industry experience.*  
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.

*Offered: Fall/Spring*

**WLD 297 Welding Seminar /25-4 cr. hrs./25-4 periods (.25-4 lec.) variable workload.**

*Prerequisite(s): Consent of instructor.*  
Welding job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

*Offered: Fall/Spring*

## WOMEN'S STUDIES

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**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: Fall*

## WRITING

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**WRT 070 Developmental Writing /3 cr. hrs./3 periods (3 lec.)**

Development of fundamental writing skills. Includes sentence development and structure, writing processes, and written works.

*Offered: Fall/Spring/Summer*

**WRT 070A Developmental Writing: Module A /1 cr. hr./1 period (1 lec.)**

Module A constitutes approximately the first one-third of WRT 070.

*Information:* WRT 070A, 070B, and 070C together constitute WRT 070.

*Offered: Fall/Spring/Summer*

**WRT 070B Developmental Writing: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): WRT 070A or concurrent enrollment.*

Module B constitutes approximately the second one-third of WRT 070.

*Information:* WRT 070A, 070B, and 070C together constitute WRT 070.

*Offered: Fall/Spring/Summer*

**WRT 070C Developmental Writing: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): WRT 070B or concurrent enrollment.*

Module C constitutes approximately the third one-third of WRT 070.

*Information:* WRT 070A, 070B, and 070C together constitute WRT 070.

*Offered: Fall/Spring/Summer*

**WRT 072 Sentence Patterns /1 cr. hr./1 period (1 lec.)**

Review of various types of sentence structures. Includes variety of sentences, common grammar and sentence errors, punctuation, and short papers.

*Offered: Fall/Spring/Summer*

**WRT 073 Punctuation /1 cr. hr./1 period (1 lec.)**

Review of punctuation mechanics. Includes rules of punctuation, punctuation mark usage, and written assignments.

*Offered: Fall/Spring/Summer*

**WRT 075 Writing for Non-Native Speakers of English /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s): Satisfactory score on the writing assessment test.*

Specialized training for bilingual students in the fundamental skills of writing in English. Includes writing and punctuating sentences, sentence development and structure, and the writing process. Also includes idiomatic expressions and issues of interest to non-native speakers of English.

*Information:* Equivalent to WRT 070.

*Offered: Fall/Spring/Summer*

**WRT 075A Writing for Non-Native Speakers of English: Beginning /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): Satisfactory score on the writing assessment test.*

Specialized training for bilingual students in the fundamental skills of beginning writing in English. Includes beginning writing and punctuating sentences, beginning sentence development and structure, and the short paragraph writing process. Also includes idiomatic expressions and issues of interest to non-native speakers of English.

*Information:* Equivalent to WRT 070A.

*Information:* WRT 075A, 075B, and 075C together constitute WRT 075.

*Offered: Fall/Spring/Summer*

**WRT 075B Writing for Non-Native Speakers of English: Intermediate /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): WRT 075A.*

Specialized training for bilingual students in the fundamental skills of intermediate writing in English. Includes intermediate writing and punctuating sentences, intermediate sentence development and structure, and the long paragraph writing process. Also includes idiomatic expressions and issues of interest to non-native speakers of English.

*Information:* Equivalent to WRT 070B.

*Information:* WRT 075A, 075B, and 075C together constitute WRT 075.

*Offered: Fall/Spring/Summer*

**WRT 075C Writing for Non-Native Speakers of English: Advanced /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s): WRT 075B.*

Specialized training for bilingual students in the fundamental skills of advanced writing in English. Includes advanced writing and punctuating sentences, advanced sentence development and structure, and the short essay writing process. Also includes idiomatic expressions and issues of interest to non-native speakers of English.

*Information:* Equivalent to WRT 070C.

*Information:* WRT 075A, 075B, and 075C together constitute WRT 075.

*Offered: Fall/Spring/Summer*

**WRT 100 Writing Fundamentals /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 070 or satisfactory score on writing assessment test.  
Review of sentence structure, mechanics and usage. Includes review of sentence patterns, designing and writing effective paragraphs, and developing short essays.  
*Offered:* Fall/Spring/Summer

**WRT 100A Writing Fundamentals: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 070 or satisfactory score on writing assessment test.  
Module A constitutes approximately the first one-third of WRT 100.  
*Information:* WRT 100A, 100B, and 100C together constitute WRT 100.  
*Offered:* Fall/Spring/Summer

**WRT 100B Writing Fundamentals: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 100A.  
Module B constitutes approximately the second one-third of WRT 100.  
*Information:* WRT 100A, 100B, and 100C together constitute WRT 100.  
*Offered:* Fall/Spring/Summer

**WRT 100C Writing Fundamentals: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 100B.  
Module C constitutes approximately the third one-third of WRT 100.  
*Information:* WRT 100A, 100B, and 100C together constitute WRT 100.  
*Offered:* Fall/Spring/Summer

**WRT 101 Writing I /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 100 or satisfactory score on writing assessment test.  
Principles and practices of writing. Includes writing college-level essays, review of basic writing skills, and written works. Also includes narrative/descriptive, expository, and persuasive writing.  
*Offered:* Fall/Spring/Summer

**WRT 101A Writing I: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 100 or satisfactory score on writing assessment test.  
Module A constitutes approximately the first one-third of WRT 101.  
*Information:* WRT 101A, 101B, and 101C together constitute WRT 101.  
*Offered:* Fall/Spring/Summer

**WRT 101B Writing I: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 101A.  
Module B constitutes approximately the second one-third of WRT 101.  
*Information:* WRT 101A, 101B, and 101C together constitute WRT 101.  
*Offered:* Fall/Spring/Summer

**WRT 101C Writing I: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 101B.  
Module C constitutes approximately the third one-third of WRT 101.  
*Information:* WRT 101A, 101B, and 101C together constitute WRT 101.  
*Offered:* Fall/Spring/Summer

**WRT 102 Writing II /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 101.  
Continuation of WRT 101. Includes writing analytical or critical papers, analysis and discussion of various types of literature, developing research skills, and written works. Also includes writing a research paper.  
*Offered:* Fall/Spring/Summer

**WRT 106 Writing Fundamentals for Non-Native Speakers of English /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 075 or satisfactory score on the writing assessment test.  
Review of sentence structure, mechanics and usage appropriate for non-native speakers of English. Includes review of the writing process, designing and writing effective paragraphs, and writing longer papers.  
*Information:* Equivalent to WRT 100.  
*Offered:* Fall/Spring/Summer

**WRT 106A Writing Fundamentals for Non-Native Speakers of English: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 075 or satisfactory score on the writing assessment test.  
Module A constitutes approximately the first one-third of WRT 106.  
*Information:* Equivalent to WRT 100A.  
*Offered:* Fall/Spring/Summer

**WRT 106B Writing Fundamentals for Non-Native Speakers of English: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 106A.  
Module B constitutes approximately the second one-third of WRT 106.  
*Information:* Equivalent to WRT 100B.  
*Offered:* Fall/Spring/Summer

**WRT 106C Writing Fundamentals for Non-Native Speakers of English: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 106B.  
Module C constitutes approximately the third one-third of WRT 106.  
*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.)**

*Prerequisite(s):* WRT 106 or satisfactory score on the writing assessment test.  
Principles and practices of writing appropriate for non-native speakers of English. Includes writing college level essays, review of basic writing skills, and written works. Also includes descriptive, expository, and persuasive writing.  
*Information:* Equivalent to WRT 101.  
*Offered:* Fall/Spring/Summer

**WRT 107A Writing I for Non-Native Speakers of English: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 106 or satisfactory score on the writing assessment test.  
Module A constitutes approximately the first one-third of WRT 107.  
*Information:* Equivalent to WRT 101A.  
*Offered:* Fall/Spring/Summer

**WRT 107B Writing I for Non-Native Speakers of English: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 107A.  
Module B constitutes approximately the second one-third of WRT 107.  
*Information:* Equivalent to WRT 101B.  
*Offered:* Fall/Spring/Summer

**WRT 107C Writing I for Non-Native Speakers of English: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 107B.  
Module C constitutes approximately the third one-third of WRT 107.  
*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.)**

*Prerequisite(s):* WRT 107.  
Continuation of WRT 107 appropriate for non-native speakers of English. Includes writing analytical or critical papers, analysis and discussion of various types of literature, developing research skills and written works. Also includes writing a research paper.  
*Information:* Equivalent to WRT 102.  
*Offered:* Fall/Spring/Summer

**WRT 125 Beginning Poetry Writing /3 cr. hrs./3 periods (3 lec.)**

Poetry for beginners. Includes beginning techniques of poetry writing and their effects, beginning evaluation and critical response to poems, and beginning original writing.  
*Information:* Not for transfer.  
*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.)**

Writing and reviewing short stories. Includes types and styles of short fiction, survey of American short stories, aesthetics toward creative short story writing, and writing a short story.  
*Information:* May be taken three times for a maximum of nine credit hours.  
*Offered:* Fall/Spring/Summer

**WRT 150 Practical Communications /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 070 or satisfactory score on the writing assessment test.  
Writing and speaking skills for career fields. Includes career application procedures, and written and oral communication skills.  
*Offered:* Fall/Spring

**WRT 150A Practical Communications: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 070 or satisfactory score on the writing assessment test.  
Module A constitutes approximately the first one-third of WRT 150.  
*Information:* WRT 150A, 150B, and 150C together constitute WRT 150.  
*Offered:* Fall/Spring/Summer

**WRT 150B Practical Communications: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 150A.  
Module B constitutes approximately the second one-third of WRT 150.  
*Information:* WRT 150A, 150B, and 150C together constitute WRT 150.  
*Offered:* Fall/Spring/Summer

**WRT 150C Practical Communications: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 150B.  
Module C constitutes approximately the third one-third of WRT 150.  
*Information:* WRT 150A, 150B, and 150C together constitute WRT 150.  
*Offered:* Fall/Spring/Summer



**WRT 154 Career Communications /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 100 or 101.

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.

*Offered:* Fall/Spring/Summer

**WRT 154A Career Communications: Job Related Writing Principles and Skills /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 100 or 101.

Basic job related writing principles and skills. Includes the use of standard written English and writing for audiences and situations.

*Information:* WRT 154A, 154B, and 154C together constitute WRT 154.

*Offered:* Fall/Spring

**WRT 154B Career Communications: Basic Job Related Correspondence /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 154A.

Writing job related correspondence. Includes forms and letters, resumes, and application letters and forms.

*Information:* WRT 154A, 154B, and 154C together constitute WRT 154.

*Offered:* Fall/Spring

**WRT 154C Career Communications: Basic Job Related Reports /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 154B.

Writing of job related reports. Includes short reports, technical descriptions, and evaluation of published materials.

*Information:* WRT 154A, 154B, and 154C together constitute WRT 154.

*Offered:* Fall/Spring

**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, and printing and distribution.

*Information:* May be taken two times for a maximum of six credit hours.

*Offered:* Fall/Spring

**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:* Fall/Spring

**WRT 205 Introduction to Poetry Writing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 102, 108.

Writing contemporary poetry. Includes techniques of poetry writing and their effects, evaluation and critical response to poems, and original writing.

*Offered:* Fall/Spring/Summer

**WRT 206 Short Story Writing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 102 or 108.

Short fiction writing. Includes techniques of fiction writing and their effects, critical responses to fiction, and original writing.

*Offered:* Fall/Spring/Summer

**WRT 207 Sophomore Composition: Creative Nonfiction /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 102, and consent of instructor.

Creative nonfiction writing. Includes techniques of nonfiction writing and their effects, original writing, and critical responses to nonfiction.

*Information:* May be taken four times for a maximum of twelve credit hours.

*Will not be offered this year*

**WRT 215 Advanced Poetry Writing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 125 or 205 or consent of instructor.

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.

*Will not be offered this year*

**WRT 216 Advanced Fiction Writing /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* Consent of instructor.

Advanced techniques of fiction writing. Includes advanced techniques of fiction writing, original writing, and critical responses to fiction. Also includes preparing manuscripts for publication.

*Information:* May be taken four times for a maximum of twelve credit hours.

*Will not be offered this year*

**WRT 217 Advanced Composition: Creative Nonfiction /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 207 and consent of instructor.

Advanced techniques of creative nonfiction writing. Includes original writ-

ing, critical response to nonfiction, and marketing techniques.

*Information:* May be taken four times for a maximum of twelve credit hours.

*Will not be offered this year*

**WRT 226 Special Projects in Fiction /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 216 and consent of instructor.

Continuation of advanced fiction writing with emphasis on book-length projects. Includes writing, critiquing, and revising of short story collections and novels and preparing them for publication.

*Information:* May be taken four times for a maximum of twelve credit hours.

*Will not be offered this year*

**WRT 254 Advanced Professional Communications /3 cr. hrs./3 periods (3 lec.)**

*Prerequisite(s):* WRT 102 or 154.

Techniques of writing for scientific, technical and other professional occupations. Includes writing long and short reports, researching and writing about a topic, oral presentations, and use of appropriate style.

*Offered:* Spring

**WRT 254A Advanced Professional Communications: Module A /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 102 or 154.

Module A constitutes approximately the first one-third of WRT 254.

*Information:* WRT 254A, 254B, and 254C together constitute WRT 254.

*Offered:* Fall/Spring/Summer

**WRT 254B Advanced Professional Communications: Module B /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 254A or concurrent enrollment.

Module B constitutes approximately the second one-third of WRT 254.

*Information:* WRT 254A, 254B, and 254C together constitute WRT 254.

*Offered:* Fall/Spring/Summer

**WRT 254C Advanced Professional Communications: Module C /1 cr. hr./1 period (1 lec.)**

*Prerequisite(s):* WRT 254B or concurrent enrollment.

Module C constitutes approximately the third one-third of WRT 254.

*Information:* WRT 254A, 254B, and 254C together constitute WRT 254.

*Offered:* Fall/Spring/Summer

**WRT 281 Beginning Workshop in Tutoring Composition /1 cr. hr./3 periods (3 lab)**

*Prerequisite(s):* WRT 101 and 102.

Introductory workshop in tutoring composition. Includes tutee characteristics and tutoring techniques for development of writing strategies.

*Will not be offered this year*

**WRT 282 Intermediate Workshop in Tutoring Composition /1 cr. hr./3 periods (3 lab.)**

*Prerequisite(s):* WRT 281.

Continuation of WRT 281. Includes assisting tutees with research methods, assisting tutees with disabilities, and assisting tutees whose first language is not English.

*Will not be offered this year*

**WRT 285 Pima Writers' Workshop /2 cr. hrs./2 periods (2 lec.)**

Writing of fiction, nonfiction and poetry, stories for children, and screenplays. Includes techniques of writing, publishing trends and approaches, and criteria for evaluating writing. Also includes the opportunity for participants to have their writing critiqued and presentations by professional authors, editors, and agents.

*Information:* May be taken five times for a maximum of ten credit hours.

*Offered:* Spring

## YAQUI

For courses numbered 098, 198, 298 see "Topics Courses" on page 338

**Yaq 101 Elementary Yaqui I /4 cr. hrs./4 periods (4 lec.)**

Introduction to the Yaqui language. Includes instruction in the grammar and writing system of the language and is intended to help the student acquire skills in speaking, reading, and writing Yaqui. Also includes an overview of Yaqui traditional culture as a background for the use of the language.

*Offered:* Fall

**Yaq 102 Elementary Yaqui II /4 cr. hrs./4 periods (4 lec.)**

*Prerequisite(s):* Yaq 101.

Continuation of Yaq 101. Includes development of skills in speaking, understanding, reading, and writing the language. Also includes study of the Yaqui traditional culture as a background for language use.

*Will not be offered this year*



# Workforce Response Programs and Apprentice Related Instruction

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.

## Basic Business and Industry Technology Certificate for Direct Employment

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

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

#### 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.

**Total credits as displayed . . . . . 3-15**

## Advanced Business and Industry Technology Certificate for Direct Employment

General Education courses are required for certificates that exceed 29 credits.

### General Education Requirements -

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

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

Communication Requirement . . . . . 3  
See General Education section, Page 49

Analysis and Critical Thinking Requirement . . . . . 3  
See General Education section, Page 49

**Subtotal . . . . . 6**

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

### Required Core Courses -

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

Technical Electives . . . . . 16-59  
Complete 16-59 credit hours from Business or Industry Technical courses with the approval of a faculty advisor or instructional dean.

**Total credits as displayed . . . . . 16-59**

## Advanced Business and Industry Technology Certificate for Direct Employment - Retail Management

The Advanced Business and Industry Technology Certificate for Direct Employment with a concentration in Retail Management is fully endorsed by the Western Association of Food Chains (WAFCC).

This comprehensive program designed to prepare current and future retail employees for the challenges found in a competitive retail environment. Primary emphasis is to provide the students with the essential business skills needed to develop a successful management career in retailing. This program is also intended to help students develop a clear sense of the scope of the retail manager's job and an understanding of the basic requirements for success in the future.

The Retail Management Major and Certificate coursework incorporates educational knowledge, human relations, IT technical skills, and is structured to lead students to competence in several areas. The program incorporates a variety of elements designed to assist students in obtaining these competencies. Courses will be available during the days and evenings, and offered either through traditional means or via distance education where possible and appropriate, enabling students to complete the certificate while working part- or full- time.

### General Education Requirements -

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

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

Communication Requirement . . . . . †  
SPE 120 fulfills this requirement

Analysis and Critical Thinking Requirement . . . . . 3  
SPE 120 fulfills this requirement

**Subtotal . . . . . 3**

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

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

ACC 101 Financial Accounting . . . . . 3

BUS 151 Mathematics of Business . . . . . 3

CIS 100 Introduction to Computers . . . . . 3  
or CSA101 Computer Fundamentals . . . . . 3

MKT 111 Principles of Marketing . . . . . 3

MGT 110 Supervision . . . . . 3

MKT 139 Retailing . . . . . 3

MGT 110 Human Relations in Business and Industry . . . 3

MGT 276 Human Resources . . . . . 3

SPE 120 Business and Professional Communication . . . 3

**Subtotal . . . . . 30**

**Total credits as displayed . . . . . 33**

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

## Business and Industry Technology — Associate of Applied Science Degree

The Associate of Applied Science degree is available for a variety of purposes to meet the needs of business, industry, and government agencies. It can be customized for apprenticeship, for workforce development, and for special clientele in need of a custom credential.

The intent of the technical electives is to provide students a body of knowledge and skill which is coherent and provides them opportunities for either a new career or career advancement. The choice of these electives usually requires a partnership between the College and another organization.

### General Education Requirements -

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

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

Communication Requirement . . . . . 6  
See General Education section, Page 49

Analysis and Critical Thinking Requirement . . . . . 6  
See General Education section, Page 49

Humanities and Social Science Requirement . . . . . 6  
See General Education section, Page 49

Computer and Information Literacy Requirement . . . . . 1-3  
See General Education section, Page 49

**Subtotal . . . . . 19-21**

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

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

Technical electives . . . . . 42-46

**Subtotal . . . . . 42-46**

**Total credits as displayed . . . . . 61-67§**

§ 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.

## Corrections Training Academy — Certificate for Direct Employment

This certificate program is open to those persons selected for employment by the Arizona Department of Corrections and is awarded upon successful completion of the proper training academy. Those students interested in a career in corrections should contact the Arizona Department of Corrections.

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

### Required Core Courses -

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

COR 160	Correctional System Ethics and Professionalism . . . . .	1
COR 162	Introduction to Inmate Management . . . . .	3
COR 164	Correctional Information Systems . . . . .	1
COR 166	Correction Officers Safety and Weapons Training . . . . .	2
COR 168	Inmate Security Procedures . . . . .	2
COR 170	Security, Custody, and Control Procedures . . . . .	2
COR 172	Conflict and Crisis Management . . . . .	2
COR 176	Medical and Mental Health . . . . .	2
COR 178	Physical Fitness and Self Defense Training . . . . .	3

**Total credits as displayed . . . . . 18**

## 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 and is awarded upon successful completion of the proper training academy. Those students interested in a career in corrections should contact the Pima County Sheriff's Department.

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

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

COR 110	County Correctional Officer Training Academy . . . . .	18
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**Total credits as displayed . . . . . 18**

## Pima County Juvenile Court Center's Detention Facility Supervision and Mentoring — Certificate for Direct Employment

The Pima County Juvenile Court Center's Detention Facility Supervision and Mentoring program provides after-academy training in supervision and mentoring strategies.

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

### Required Core Courses -

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

JVC 181*	Classification Pods . . . . .	3
JVC 182*	General Population Pods . . . . .	3
JVC 183*	Administrative Segregation Pods . . . . .	3

**Total credits as displayed . . . . . 9**

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

## Youth Supervision in Corrections/Detention — Certificate for Direct Employment

This certificate program is open to those persons selected for employment by the State of Arizona or the Pima County Department of Juvenile Corrections and is awarded upon successful completion of the coursework. Those students interested in a career in youth corrections should contact the appropriate agency.

Course Number	Course Title	Credit Hours
---------------	--------------	--------------

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

#### Pima County Youth Corrections Academy

JVC 180	Pima County Detention Officer Certification . .	12
<b>Total credits as displayed . . . . .</b>		<b>12</b>

#### Arizona Youth Corrections Academy

JVC 110	Youth Contact Staff Fundamentals . . . . .	2
JVC 115	Introduction to Youth Supervision . . . . .	5
JVC 120	Health and Safety Services for Youth . . . . .	3
JVC 190	Youth Corrections Field Experience. . . . .	1-2
<b>Total credits as displayed . . . . .</b>		<b>11-12</b>

## Basic Law Enforcement — Certificate for Direct Employment

Admission to the Law Enforcement Certificate for Direct Employment program requires employment and sponsorship of a public or private law enforcement agency. Students seeking admission to this certificate program must have completed the following basic requirements before they can begin the program:

- High school diploma or GED
- At least 18 years of age
- 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
- Other requirements that are specific to each law enforcement agency

The law enforcement programs consist of skills which are basic to several law enforcement and public safety careers, commissioned law enforcement officer training, and supervision skills. They are all identified by the LEN prefix.

Students must be employed by an agency before being admitted to this program. Completion of the program meets and exceeds the minimum P.O.S.T. requirements for entry-level employment as a peace officer.

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

LEN 120*	Introduction to Law Enforcement . . . . .	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 . . . . .	2
LEN 205*	Police Proficiency Skills I. . . . .	3
LEN 206*	Police Proficiency Skills II . . . . .	3
LEN 207*	Police Proficiency Skills III. . . . .	3
LEN 208*	Police Proficiency Skills IV . . . . .	3

**Total credits as displayed . . . . . 33**

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

## Basic Law Enforcement-Supervision — Certificate for Direct Employment

The law enforcement programs consist of skills which are basic to several law enforcement and public safety careers, commissioned law enforcement officer training, and supervision skills. They are all identified by the LEN prefix.

Students must be certified law enforcement officers or receive special permission prior to admittance into this program.

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

LEN 270*	Principles of Law Enforcement Supervision . . .	3
LEN 271*	Skills for Community-Oriented Policing. . . . .	4
LEN 274*	Supervision of Community-Oriented Policing . .	3
LEN 290*	Law Enforcement Field Experience . . . . .	3

**Subtotal. . . . . 13**

### Support Course

CSA 101	Computer Fundamentals . . . . .	3
<b>Total credits as displayed . . . . .</b>		<b>16</b>

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

## Law Enforcement — Associate of Applied Science Degree for Direct Employment

The law enforcement programs consist of skills which are basic to several law enforcement and public safety careers, commissioned law enforcement officer training, and supervision skills. They are all identified by the LEN prefix.

Students must have completed the Law Enforcement Certificate to be admitted into this program.

This AAS degree transfers to the Bachelor of Applied Science degree program in Justice Systems and Policy Planning at NAU-Tucson.

### General Education Requirements -

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

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

Communication Requirement . . . . . †  
WRT 101 and 102\* fulfill this requirement.

Analysis and Critical Thinking Requirement . . . . . 4  
MAT 142 fulfills 3 credits of this requirement.

Select a laboratory science course for 4 or more credits.  
See General Education section, Page 49

Humanities and Social Science Requirement . . . . . 6  
See General Education section, Page 49

Computer and Information Literacy Requirement . . . . . †  
LEN 150 and LEN 163 fulfill this requirement.

**Subtotal. . . . . 10**

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

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

LEN 120*	Introduction to Law Enforcement . . . . .	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 . . . . .	2
LEN 163	Research and Planning. . . . .	3
LEN 205*	Police Proficiency Skills I. . . . .	3
LEN 206*	Police Proficiency Skills II . . . . .	3
LEN 207*	Police Proficiency Skills III. . . . .	3
LEN 208*	Police Proficiency Skills IV . . . . .	3
<b>Subtotal. . . . .</b>		<b>36</b>

### Required Support Courses

AJS 101	Introduction to Administration of Justice Systems . . . . .	3
AJS 124	Ethics and the Administration of Justice. . . . .	3
AJS 165	Introduction to Justice Data Systems . . . . .	
AJS 225	Crime and Delinquency . . . . .	3
AJS 246	Race and Ethnicity Issues in the Administration of Justice. . . . .	3
MAT 142*	Topics in Mathematics. . . . .	3
WRT 101*	Writing I . . . . .	3
WRT 102*	Writing II . . . . .	3
<b>Subtotal. . . . .</b>		<b>24</b>

**Total credits as displayed . . . . . 70§**

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

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

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

## Safety: Metropolitan Emergency Response System (MERS) — Certificate for Direct Employment

The safety certificate options provide intensive training to Public Safety Personnel who are deployed and/or activated during an incident of domestic terrorism involving weapons of mass destruction. You must be employed by a sponsoring agency in order to enroll in this certificate sequence.

### Communications Track

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

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

SAF 202*	Emergency Response to Terrorism-Basic Concepts. . . . .	.5-1.0
SAF 205*	Patterns of Domestic and Global Terrorism . . . . .	.25-.5
SAF 206*	Metropolitan Emergency Response Systems Implementation. . . . .	.5
SAF 237*	Emergency Operations Center . . . . .	.5
SAF 243*	Critical Incident Stress Management (CISM). . . . .	.25-.5
SAF 260*	Dispatcher Readiness. . . . .	.5

### Support Courses

Select and additional 3 Safety (SAF prefix) courses.

**Total credits as displayed . . . . . 3.25-6.5**

### Community Track

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

SAF 101*	Basic Concepts of Preparedness for Natural Disasters. . . . .	.25
SAF 202*	Emergency Response to Terrorism-Basic Concepts . . . . .	.5-1.0
SAF 205*	Patterns of Domestic and Global Terrorism. . . . .	.25 - .5



**Support Courses - Choose one of the following:**

SAF 103*	School Preparedness	1.0
SAF 105*	Community Preparedness	.25
SAF 107*	Industry Preparedness	1.0
Select and additional 2 Safety (SAF prefix) courses		

**Total credits as displayed** . . . . . **1.75 - 4.75**

Fire Service Track**Required Core Courses -**

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

SAF 202*	Emergency Response to Terrorism-Basic Concepts	.5-1
SAF 204*	Incident Command System (ICS)	.5
SAF 206*	Metropolitan Emergency Response Systems Implementation	.5
SAF 232*	Incident Command System for Emergency Medical Services	.5
SAF 234*	Simple Triage and Rapid Treatment (START) Triage	.25-.5
SAF 243*	Critical Incident Stress Management (CISM)	.25-.5

**Support Courses**

Select and additional 3 Safety (SAF prefix) courses.

**Total credits as displayed** . . . . . **3.25-6.5**

Law Enforcement Track**Required Core Courses -**

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

SAF 202*	Emergency Response to Terrorism-Basic Concepts	.5-1
SAF 204*	Incident Command System (ICS)	.5
SAF 206*	Metropolitan Emergency Response Systems Implementation	.5
SAF 241*	Target Vulnerability and Structural Threat Assessment	.5
SAF 242*	Traffic, Crowds, and Protective Equipment	.5
SAF 243*	Critical Incident Stress Management (CISM)	.25-.5

Support Courses . . . . .

Select and additional 3 Safety (SAF prefix) courses.

**Total credits as displayed** . . . . . **3.5-6.5**

Medical Track**Required Core Courses -**

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

SAF 243*	Critical Incident Stress Management (CISM)	.25-.5
SAF 250*	Medical Response to Weapons of Mass Destruction	.25
SAF 251*	Infection Control	.25
SAF 252*	Agents of Weapons of Mass Destruction	.25-

**1Support Courses** . . . . .

Select and additional 3 Safety (SAF prefix) courses or take FSC 153, Hazardous Materials and select and additional 2 Safety (SAF prefix) courses

**Total credits as displayed** . . . . . **1.75-7.0**

**Emergency Medical Technology Intermediate — Certificate for Direct Employment**

This program is not open to the general public. Please contact the Public Safety Institute at the East Campus for more information — (520) 206-7814.

This program is approved by the Arizona Department of Health Services, Bureau of Emergency Medical Services. Students who complete the program will be issued a certificate for direct employment by Pima Community College. Upon successful completion of the program, the graduate is eligible to take the required State and National Registry of Emergency Medical Technicians examinations. Current Arizona Department of Health Services regulations allow program graduates to take the Arizona EMT-I examination and/or the National Registry of Emergency Medical Technicians examination. Certification to work as an Emergency Medical Technician rests entirely with the Arizona Department of Health Services, Bureau of Emergency Medical Services. Requirements for entrance into the EMS-I program may also be found in Arizona Administrative Code, Title 9, Chapter 25, Article 408 (A) (B) (C) (D).

**Acceptance Into the Program:**

- Completion of College admission requirements.
- Completion of acceptance criteria as established by the Arizona Department of Health Services and Pima Community College.
- Completion of the following prerequisites
  - BIO 160IN Introduction to Human Anatomy and Physiology - 4 Credits
  - OAP 162 Medical Terms I - 3 Credits
- Students must hold current certification as an EMT-B, I-EMT or EMT-P
- Program size is limited to 24 students by State of Arizona regulations.

The Emergency Medical Technology - Intermediate certificate program increases the knowledge and skill of the EMT-B in advanced life support including: airway and ventilation, introduction to respiratory pharmacology and respiratory drug profiling, and trauma. The program also includes advanced physical assessment on an emergency patient, including respiratory, cardiovascular, neurological, endocrine, allergic, toxic, environmental, behavioral and gynecological emergencies.

Course Number	Course Title	Credit Hours
<b>Required Core Course -</b>		
<b>A grade of C or better is required for graduation.</b>		
EMT 170*	ALS Operations	1
EMT 205*	ALS Pharmacology and Medication Administration	3
EMT 217*	I-EMT National Registry Preparatory Course	2
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 227*	ALS Practicum: Clinical Lab	3
EMT 228*	ALS Practicum: Vehicular Lab	3
EMT 230	Basic ECG Interpretation	1.5

EMT 250	Advanced Cardiac Care	1.5
EMT 252	Pediatric Advanced Life Support	
or EMT 258	Pediatric Education for Pre-Hospital Professionals	1.5
<b>Subtotal</b>		<b>29</b>
<b>Total credits as displayed</b>		<b>29</b>

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

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

### Emergency Medical Technology — Paramedic Certificate for Direct Employment

This program is not open to the general public. Please contact the Public Safety Institute at the East Campus for more information — (520) 206-7814.

This program is approved by the Arizona Department of Health Services, Bureau of Emergency Medical Services. Students who complete the program will be issued a certificate for direct employment by Pima Community College. Upon successful completion of the program the graduate is eligible to take the required State and National Registry of Emergency Medical Technicians examinations. Current Arizona Department of Health Services regulations allow program graduates to take the Arizona EMT-P examination and/or the National Registry of Emergency Medical Technicians examination. Certification to work as an Emergency Medical Technician rests entirely with the Arizona Department of Health Services, Bureau of Emergency Medical Services. Requirements for entrance into the EMS-P program (see narrative) may also be found in Arizona Administrative Code, Title 9, Chapter 25, Article 408 (A) (B) (C) (D).

#### Acceptance into the Program:

- Completion of College admission requirements.
- Completion of acceptance criteria as established by the Arizona Department of Health Services and Pima Community College.
- Completion of the following prerequisites:
  - BIO 160IN Introduction to Human Anatomy and Physiology - 4 Credits
  - OAP 162 Medical Terms I - 3 Credits
- Students must hold current certification as an EMT-B, I-EMT or EMT-P
- Program size is limited to 24 students by State of Arizona regulations.

The paramedic certificate program increases the knowledge and skill of the I-EMT and the EMT-B in advanced life support including: endotracheal intubation, cardiac arrhythmia recognition and intervention. The program also includes drug therapy, invasive procedures, advanced airway management, and I.V. therapy. This certificate requires six credit hours of general education course work.

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

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

Communication Requirement . . . . . 3  
See a Public Safety and Emergency Services Institute (PSI) advisor, phone contact (520) 206-7814.

Analysis and Critical Thinking Requirement . . . . . 3  
See a Public Safety and Emergency Services Institute (PSI) advisor, phone contact (520) 206-7814.

**Subtotal** . . . . . **6**

Course Number	Course Title	Credit Hours
<b>Required Core Courses - A grade of C or better is required for graduation.</b>		
All of the core courses require acceptance into the Advanced Paramedic Program.		
EMT 170*	ALS Operations	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 227*	ALS Practicum: Clinical Lab	3
EMT 228*	ALS Practicum: Vehicular Lab	3
EMT 229*	ALS Independent Research	3
EMT 230*	Basic ECG Interpretation	1.5
EMT 242*	ALS Advanced Foundations	2
EMT 244*	ALS Advanced Medical Emergencies	2.5
EMT 247*	ALS Advanced Practicum: Clinical Lab	2
EMT 248*	ALS Advanced Practicum: Vehicular Lab	3
EMT 250*	Advanced Cardiac Care	1.5
EMT 252* or EMT 258*	Pediatric Advanced Life Support Pediatric Education for Pre-Hospital Professionals	1.5
EMT 254*	Advanced ECG Interpretation	3
EMT 263*	Tox-Medic	1.5
<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.

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

### Emergency Medical Technology — Paramedic — Associate of Applied Science Degree for Direct Employment

This program is not open to the general public. Please contact the Public Safety Institute at the East Campus for more information — (520) 206-7814.

This program is approved by the Arizona Department of Health Services, Bureau of Emergency Medical Services. Students who complete the program will be issued an Associate of Applied Science degree by Pima Community College. Upon successful completion of the program, the graduate is eligible to take the required State and National Registry of Emergency Medical Technicians examinations. Current Arizona Department of Health Services regulations allow program graduates to take the Arizona EMT-P examination and/or the National Registry of Emergency Medical Technicians examination. Certification to work as an emergency medical technician rests entirely with the Arizona Department of Health Services, Bureau of Emergency Medical Ser-

vices. Requirements for entrance into the EMS-P program (see narrative) may also be found in Arizona Administrative Code, Title 9, Chapter 25, Article 408 (A) (B) (C) (D).

#### Acceptance into the program:

- Completion of College admission requirements.
- Completion of acceptance criteria as established by the Arizona Department of Health Services and Pima Community College.
- Completion of the following prerequisites:  
BIO 160IN Introduction to Human Anatomy and Physiology - 4 Credits  
OAP 162 Medical Terms I – 3 Credits
- Students must hold current certification as an EMT-B, I-EMT or EMT-P.
- Program size is limited to 24 students by State of Arizona regulation.

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. The Associate of Applied Science Degree requires eighteen hours of general education course work.

#### General Education Requirements -

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

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

Communication Requirement . . . . . 6  
See a Public Safety and Emergency Services Institute (PSI) advisor, phone contact (520) 206-7814.

Analysis and Critical Thinking Requirement . . . . . 6  
See a Public Safety and Emergency Services Institute (PSI) advisor, phone contact (520) 206-7814.

Humanities and Social Science Requirement. . . . . 6  
See General Education section, Page 49

Computer and Information Literacy Requirement. . . . . 1-3  
See General Education section, Page 49

**Subtotal . . . . . 19-21**

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

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

All of the core courses require acceptance into the Advanced Paramedic Program.		
EMT 170*	ALS Operations . . . . .	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 227*	ALS Practicum: Clinical Lab . . . . .	3
EMT 228*	ALS Practicum: Vehicular Lab . . . . .	3
EMT 229*	ALS Independent Research . . . . .	3
EMT 230*	Basic ECG Interpretation . . . . .	1.5
EMT 242*	ALS Advanced Foundations . . . . .	2
EMT 244*	ALS Advanced Medical Emergencies. . . . .	2.5
EMT 247*	ALS Advanced Practicum: Clinical Lab . . . . .	2
EMT 248*	ALS Advanced Practicum: Vehicular Lab. . . . .	3
EMT 250	Advanced Cardiac Care . . . . .	1.5
EMT 252	Pediatric Advanced Life Support	
or EMT 258	Pediatric Education for Pre-Hospital Professionals . . . . .	1.5
EMT 254	Advanced ECG Interpretation. . . . .	3
EMT 263	Tox-Medic. . . . .	1.5
<b>Subtotal. . . . .</b>		<b>50</b>

**Total credits as displayed . . . . . 69-71§**

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

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

## Apprentice Related Instruction

Pima Community College works jointly with local and state apprenticeship groups to offer related instruction in a number of selective admissions apprenticeship programs. Most programs require one year or more of on-the-job training to learn a skilled craft or trade. Students also receive classroom instruction that explains the principles and procedures used on the job.

Before students may enroll for apprentice related instruction, they must be tested, selected, signed up (indentured) in an apprenticeship program that is registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training, and the organization operating a specific training program. Selective admissions into apprentice related instruction at Pima Community College is determined by the apprenticeship organization and students must contact them directly to become an indentured apprentice. They are:

Agency and Phone Number	Credit Prefix
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#### Southeastern Arizona Carpenters Joint Apprenticeship and Training Committee

##### Carpentry:

622-8155 . . . . . CRP

#### Southern Arizona Plumbing Heating Cooling Contractors (PHCC)

##### Plumbing, HVAC:

791-0544 . . . . . DBM

#### Tucson Electrical Joint Apprenticeship and Training Program

##### Electrical:

323-1622 . . . . . ELT

#### Field Ironworkers Apprenticeship and Training Program

##### Ironworking:

(602) 276-6055 . . . . . IWA



**Plumbers and Pipefitters Joint Apprenticeship Committee**Plumbing, Pipefitting:

622-0015 ..... PFA

**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:

206-7134 ..... MAC

**Arizona Builders Alliance (ABA)**Electrical, Carpentry, Building and Construction:

881-7930 ..... WEL, WCA, BCT

**Pascua Yaqui Training and Development**Carpentry, Electrical:

879-5844 ..... ELT, WOL

**Primavera Builders**Building and Construction:

882-5383 ..... BCT

**Certificate Program:** Upon finishing all apprentice related instruction in a chosen program, a student will obtain a certificate of completion from Pima Community College. Students may also work toward an associate degree either while enrolled in apprenticeship programs or after completing the apprenticeship.

**Degree Program:** Those working to gain the Business and Industry Technology Associate of Applied Science degree (trade and industrial technology option) must meet the minimum degree requirement of 64 credit hours. Students must complete 46 credit hours of apprentice-related instruction, and/or college technical courses as well as satisfy the college reading requirement. The college technical courses must be approved by the department chair.

**Carpentry**

- CRP 101 Concrete Formwork: Building Layout /1 cr. hr./1 period (1 lec.)
- CRP 102 Concrete Formwork: Residential Footing Form /1 cr. hr./1 period (1 lec.)
- CRP 103 Concrete Formwork: Footing Forms and Bolt Layout /1 cr. hr./1 period (1 lec.)
- CRP 104 Concrete Formwork: Basic Wall Forms /1 cr. hr./1 period (1 lec.)
- CRP 105 Concrete Formwork: Circular Wall Form /1 cr. hr./1 period (1 lec.)
- CRP 106 Concrete Formwork: Column Form /1 cr. hr./1 period (1 lec.)
- CRP 107 Concrete Formwork: Spandrel Beam /1 cr. hr./1 period (1 lec.)
- CRP 108 Concrete Formwork: Deck Forms and Shoring /1 cr. hr./1 period (1 lec.)
- CRP 109 Concrete Formwork: Concrete Stair Forms /1 cr. hr./1 period (1 lec.)
- CRP 110 Concrete Formwork: Tilt-up Construction I /1 cr. hr./1 period (1 lec.)
- CRP 111 Concrete Formwork: Tilt-up Construction II /1 cr. hr./1 period (1 lec.)
- CRP 112 Concrete Formwork: Bridge Pier Column /1 cr. hr./1 period (1 lec.)
- CRP 113 Concrete Formwork: Flatwork /1 cr. hr./1 period (1 lec.)

- CRP 114 Concrete Formwork: Culverts, Headwall and Wingwalls /1 cr. hr./1 period (1 lec.)
- CRP 115 Concrete Formwork: Concrete Wall Blockouts /1 cr. hr./1 period (1 lec.)
- CRP 116 Concrete Formwork: Gang Forms /1 cr. hr./1 period (1 lec.)
- CRP 117 Concrete Formwork: Retaining Wall Footing Form /1 cr. hr./1 period (1 lec.)
- CRP 118 Framing: Basic Wall Framing /1 cr. hr./1 period (1 lec.)
- CRP 119 Framing: Wall Layout, Plating and Detailing /1 cr. hr./1 period (1 lec.)
- CRP 120 Framing: Floor Joist /1 cr. hr./1 period (1 lec.)
- CRP 121 Framing: Gable Roof /1 cr. hr./1 period (1 lec.)
- CRP 122 Framing: Hip Roof /1 cr. hr./1 period (1 lec.)
- CRP 123 Framing: Intersecting Roof /1 cr. hr./1 period (1 lec.)
- CRP 124 Framing: Wood Stairs /1 cr. hr./1 period (1 lec.)
- CRP 125 Framing: Framing Square /1 cr. hr./1 period (1 lec.)
- CRP 126 Framing: Advanced Framing Square Application /1 cr. hr./1 period (1 lec.)
- CRP 127 Framing: Residential Layout /1 cr. hr./1 period (1 lec.)
- CRP 128 Exterior Finish: Canopy /1 cr. hr./1 period (1 lec.)
- CRP 129 Exterior Finish: Roof Covering /1 cr. hr./1 period (1 lec.)
- CRP 130 Exterior Finish: Commercial Display /1 cr. hr./1 period (1 lec.)
- CRP 131 Interior Finish: Standard Door Installation /1 cr. hr./1 period (1 lec.)
- CRP 132 Interior Finish: Running Trim /1 cr. hr./1 period (1 lec.)
- CRP 133 Interior Finish: Door Hardware /1 cr. hr./1 period (1 lec.)
- CRP 134 Interior Finish: Metal Partitions /1 cr. hr./1 period (1 lec.)
- CRP 135 Interior Finish: Soffit Panel /1 cr. hr./1 period (1 lec.)
- CRP 136 Interior Systems: Metal Frame Walls /1 cr. hr./1 period (1 lec.)
- CRP 137 Interior Systems: Dry Wall Application /1 cr. hr./1 period (1 lec.)
- CRP 138 Interior Systems: Dry Wall Estimation of Material /1 cr. hr./1 period (1 lec.)
- CRP 139 Interior Systems: Suspended Lay-in Ceiling /1 cr. hr./1 period (1 lec.)
- CRP 150 Carpentry History: Tools and Materials /5 cr. hrs./6 periods (4 lec., 2 lab)
- CRP 151 Carpentry: Foundations and Forms /5 cr. hrs./6 periods (4 lec., 2 lab)
- CRP 152 Carpentry: Exterior Finish /5 cr. hr./6 periods (4 lec., 2 lab)
- CRP 153 Reinforced Concrete and Heavy Construction /5 cr. hrs./6 periods (4 lec., 2 lab)
- CRP 154 Carpentry: Interior Finish /5 cr. hrs./6 periods (4 lec., 2 lab)
- CRP 155 Carpentry: Roof Framing /5 cr. hrs./6 periods (4 lec., 2 lab)
- CRP 156 Carpentry: Stair Building /5 cr. hrs./6 periods (4 lec., 2 lab)
- CRP 157 Blueprint Reading and Estimating /5 cr. hrs./6 periods (4 lec., 2 lab)

**Custodial Development**

- CUA 101 Custodial Development: Chemicals and Equipment Used in Cleaning /1 cr. hr./1 period (1 lec.)
- CUA 102 Custodial Development: Area Cleaning Techniques /1 cr. hr./1 period (1 lec.)
- CUA 103 Custodial Development: Safety and Floor Care /1 cr. hr./1 period (1 lec.)
- CUA 104 Custodial Development I: Floor Coverings /1 cr. hr./1 period (1 lec.)
- CUA 105 Custodial Development I: Floor Cleaning Techniques /1 cr. hr./1 period (1 lec.)



- CUA 106 Custodial Development I: Carpet Cleaning Techniques / 1 cr. hr./1 period (1 lec.)
- CUA 201 Custodial Development II: Furniture Cleaning Techniques /1 cr. hr./1 period (1 lec.)
- CUA 202 Custodial Development II: Special Area Cleaning Techniques /1 cr. hr./1 period (1 lec.)

### Design, Building and Maintenance

- DBM 100 Electrical Grounding /1-3 cr. hrs./1-3 periods (1-3 lec.)
- DBM 101 Industrial Wiring and Codes /1-3 cr. hrs./1-3 periods (1-3 lec.)
- DBM 102 Motor Controls /1-3 cr. hrs./1-3 periods (1-3 lec.)
- DBM 103 Electrical Codes and Inspection I /1-3 cr. hrs./1-3 periods (1-3 lec.)
- DBM 104 Electrical Codes and Inspection II /1-3 cr. hrs./1-3 periods (1-3 lec.)
- DBM 121 Residential and Industrial Plumbing I /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 122 Residential and Industrial Plumbing II /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 123 Residential and Industrial Plumbing III /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 124 Residential and Industrial Plumbing IV /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 131 Residential and Industrial HVAC I /4 cr. hrs./6 periods (2 lec., 4 lab)
- DBM 132 Residential and Industrial HVAC II /4 cr. hrs./6 periods (2 lec., 4 lab)
- DBM 133 Residential and Industrial HVAC III /4 cr. hrs./6 periods (2 lec., 4 lab)
- DBM 134 Residential and Industrial HVAC IV /4 cr. hrs./6 periods (2 lec., 4 lab)
- DBM 150 Braze Welding /1 cr. hr./2 periods ( 2 lab)
- DBM 201 Residential and Industrial Plumbing V /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 202 Residential and Industrial Plumbing VI /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 203 Residential and Industrial Plumbing VII /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 204 Residential and Industrial Plumbing VIII /4 cr. hrs./6 periods (3 lec., 3 lab)
- DBM 210 Supervisory Techniques for Foremen /1 cr. hr./1 period (1 lec.)
- DBM 211 Leadership and Motivation /1 cr. hr./1 period (1 lec.)
- DBM 212 Oral and Written Communication /1 cr. hr./1 period (1 lec.)
- DBM 213 Problem Solving and Decision-Making /1 cr. hr./1 period (1 lec.)
- DBM 214 Contract Documents /1 cr. hr./1 period (1 lec.)
- DBM 215 Planning and Scheduling /1 cr. hr./1 period (1 lec.)
- DBM 216 Cost Awareness and Production Control /1 cr. hr./1 period (1 lec.)
- DBM 217 Project Safety and Loss Prevention /1 cr. hr./1 period (1 lec.)
- DBM 218 Project Management /1 cr. hr./1 period (1 lec.)
- DBM 219 Construction Law: Changes, Claims, and Negotiations/ 1 cr. hr./1 period (1 lec.)
- DBM 220 Productivity Improvement /1 cr. hr./1 period (1 lec.)
- DBM 221 Hazardous Materials Awareness /.25 cr. hr./25 period (.25 lec.)
- DBM 231 Residential and Industrial HVAC V/ 4 cr. hrs./6 periods (2 lec./4lab)
- DBM 232 Residential and Industrial HVAC VI/ 4 cr. hrs./6 periods (2 lec./4 lab)

### Electrical Apprenticeship Training

- ELT 101 Apprentice Inside Wireman I /6 cr. hrs./6 periods (6 lec.)
- ELT 101A Apprentice Inside Wireman I: Math Review /3 cr. hrs./3 periods (3 lec.)
- ELT 101B Apprentice Inside Wireman I: Math for Electricians / 3 cr. hrs./3 periods (3 lec.)
- ELT 102 Apprentice Inside Wireman II /6 cr. hrs./6 periods (6 lec.)
- ELT 201 Apprentice Inside Wireman III /6 cr. hrs./6 periods (6 lec.)
- ELT 202 Apprentice Inside Wireman IV /6 cr. hrs./6 periods (6 lec.)
- ELT 231 Apprentice Inside Wireman V /6 cr. hrs./6 periods (6 lec.)
- ELT 232 Apprentice Inside Wireman VI /6 cr. hrs./6 periods (6 lec.)
- ELT 241 Apprentice Inside Wireman VII /6 cr. hrs./6 periods (6 lec.)
- ELT 242 Apprentice Inside Wireman VIII /6 cr. hrs./6 periods (6 lec.)
- ELT 251 Apprentice Inside Wireman IX /6 cr. hrs./6 periods (6 lec.)
- ELT 252 Apprentice Inside Wireman X /6 cr. hrs./6 periods (6 lec.)

### Ironworking Apprenticeship

- IWA 101 Introduction to Trade Science /3 cr. hrs./ periods (3 lec.)
- IWA 102 Ironworkers Safety, Math/Blueprint Reading /3 cr. hrs./3 periods (3 lec.)
- IWA 110 Structural Blueprint Reading I /3 cr. hrs./3 periods (3 lec.)
- IWA 111 Structural Blueprint Reading II /3 cr. hrs./3 periods (3 lec.)
- IWA 112 Lead-In Construction /2 cr. hrs./2 periods (2 lec.)
- IWA 120 Structural Steel Erection I /3 cr. hrs./3 periods (3 lec.)
- IWA 121 Structural Steel Erection II /3 cr. hrs./3 periods (3 lec.)
- IWA 130 Reinforcing Blueprint Reading I /3 cr. hrs./3 periods (3 lec.)
- IWA 131 Reinforcing Blueprint Reading II /2 cr. hrs./2 periods (2 lec.)
- IWA 140 Post Tensioning I /3 cr. hrs./3 periods (3 lec.)
- IWA 141 Post Tensioning II /3 cr. hrs./3 periods (3 lec.)
- IWA 150 Rigging I /3 cr. hrs./3 periods (3 lec.)
- IWA 151 Rigging II /3 cr. hrs./3 periods (3 lec.)
- IWA 152 Basic Welding /3 cr. hrs./4 periods (3 lec., 1 lab)
- IWA 153 Advanced Welding /3 cr. hrs./4 periods (3 lec., 1 lab)
- IWA 160 Ornamental Ironworking I /3 cr. hrs./4 periods (3 lec.)
- IWA 161 Ornamental Ironworking II /3 cr. hrs./3 periods (3 lec.)
- IWA 170 Ironworking Safety I /3 cr. hrs./3 periods (3 lec.)
- IWA 171 Ironworking Safety II /3 cr. hrs./3 periods (3 lec.)
- IWA 172 Hazardous Materials Recertification /.5 cr. hr./5 period (.5 lec.)
- IWA 180 Light Industrial Construction Methods and Materials I / 3 cr. hrs./3 periods (3 lec.)
- IWA 181 Light Industrial Construction Methods and Materials II / 3 cr. hrs./3 periods (3 lec.)
- IWA 190 Fabrication and Detail /3 cr. hrs./3 periods (3 lec.)

### Plumbing and Pipefitting

- PFA 150A Plumbing and Pipefitting I /4.5 cr. hrs./4.5 periods (4.5 lec.)
- PFA 150B Plumbing and Pipefitting I /4.5 cr. hrs./4.5 periods (4.5 lec.)
- PFA 151A Plumbing and Pipefitting II /4.5 cr. hrs./4.5 periods (4.5 lec.)
- PFA 151B Plumbing and Pipefitting II /4.5 cr. hrs./4.5 periods (4.5 lec.)
- PFA 152A Plumbing and Pipefitting III /4.5 cr. hrs./4.5 periods (4.5 lec.)
- PFA 152B Plumbing and Pipefitting III /4.5 cr. hrs./4.5 periods (4.5 lec.)
- PFA 153A Plumbing and Pipefitting IV /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 153B Plumbing and Pipefitting IV /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 154A Plumbing V /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 154B Plumbing V /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 155A Plumbing VI /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 155B Plumbing VI /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 156A Plumbing VII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 156B Plumbing VII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 157A Plumbing VIII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 157B Plumbing VIII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 158A Plumbing IX /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 158B Plumbing IX /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 159A Plumbing X /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 159B Plumbing X /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 160A Pipefitting V /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 160B Pipefitting V /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 161A Pipefitting VI /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 161B Pipefitting VI /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 162A Pipefitting VII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 162B Pipefitting VII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 163A Pipefitting VIII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 163B Pipefitting VIII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 164A Pipefitting IX /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 164B Pipefitting IX /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 165A Pipefitting X /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 165B Pipefitting X /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 166A Refrigeration I /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 166B Refrigeration I /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 167A Refrigeration II /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 167B Refrigeration II /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 168A Refrigeration III /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 168B Refrigeration III /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 169A Refrigeration IV /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 169B Refrigeration IV /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 170A Refrigeration V /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 170B Refrigeration V /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 171A Refrigeration VI /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 171B Refrigeration VI /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 172A Refrigeration VII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 172B Refrigeration VII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 173A Refrigeration VIII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 173B Refrigeration VIII /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 174A Refrigeration IX /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 174B Refrigeration IX /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 175A Refrigeration X /4.5 cr. hrs./4.5 periods (4.5 lec.)

PFA 175B Refrigeration X /4.5 cr. hrs./4.5 periods (4.5 lec.)

### Sheet Metal

SMA 111 Apprentice Sheet Metal I /5 cr. hrs./5 periods (5 lec.)

SMA 112 Apprentice Sheet Metal II /5 cr. hrs./5 periods (5 lec.)

SMA 121 Apprentice Sheet Metal III /5 cr. hrs./5 periods (5 lec.)

SMA 122 Apprentice Sheet Metal IV /5 cr. hrs./5 periods (5 lec.)

SMA 131 Apprentice Sheet Metal V /5 cr. hrs./5 periods (5 lec.)

SMA 132 Apprentice Sheet Metal VI /5 cr. hrs./5 periods (5 lec.)

SMA 141 Apprentice Sheet Metal VII /5 cr. hrs./5 periods (5 lec.)

SMA 142 Apprentice Sheet Metal VIII /5 cr. hrs./5 periods (5 lec.)

SMA 151 Apprentice Sheet Metal IX /5 cr. hrs./5 periods (5 lec.)

SMA 152 Apprentice Sheet Metal X /5 cr. hrs./5 periods (5 lec.)

## Wheels of Learning

### Carpentry

WOL 101 Carpentry I /6 cr. hrs./6 periods (6 lec.)

WOL 102 Carpentry II /6 cr. hrs./6 periods (6 lec.)

WOL 103 Carpentry III /6 cr. hrs./6 periods (6 lec.)

WOL 104 Carpentry IV /6 cr. hrs./6 periods (6 lec.)

WOL 105 Carpentry V /6 cr. hrs./6 periods (6 lec.)

WOL 106 Carpentry VI /6 cr. hrs./6 periods (6 lec.)

WOL 107 Carpentry VII /6 cr. hrs./6 periods (6 lec.)

WOL 108 Carpentry VIII /6 cr. hrs./6 periods (6 lec.)

### HVAC

WOL 111 HVAC I /6 cr. hrs./6 periods (6 lec.)

WOL 112 HVAC II /6 cr. hrs./6 periods (6 lec.)

WOL 113 HVAC III /6 cr. hrs./6 periods (6 lec.)

WOL 114 HVAC IV /6 cr. hrs./6 periods (6 lec.)

WOL 115 HVAC V /6 cr. hrs./6 periods (6 lec.)

WOL 116 HVAC VI /6 cr. hrs./6 periods (6 lec.)

WOL 117 HVAC VII /6 cr. hrs./6 periods (6 lec.)

WOL 118 HVAC VIII /6 cr. hrs./6 periods (6 lec.)

### Masonry

WOL 121 Masonry I /6 cr. hrs./6 periods (6 lec.)

WOL 122 Masonry II /6 cr. hrs./6 periods (6 lec.)

WOL 123 Masonry III /6 cr. hrs./6 periods (6 lec.)

WOL 124 Masonry IV /6 cr. hrs./6 periods (6 lec.)

WOL 125 Masonry V /6 cr. hrs./6 periods (6 lec.)

WOL 126 Masonry VI /6 cr. hrs./6 periods (6 lec.)

### Sheet Metal

WOL 131 Sheet Metal I /6 cr. hrs./6 periods (6 lec.)

WOL 132 Sheet Metal II /6 cr. hrs./6 periods (6 lec.)

WOL 133 Sheet Metal III /6 cr. hrs./6 periods (6 lec.)

WOL 134 Sheet Metal IV /6 cr. hrs./6 periods (6 lec.)

WOL 135 Sheet Metal V /6 cr. hrs./6 periods (6 lec.)

WOL 136 Sheet Metal VI /6 cr. hrs./6 periods (6 lec.)

WOL 137 Sheet Metal VII /6 cr. hrs./6 periods (6 lec.)

WOL 138 Sheet Metal VIII /6 cr. hrs./6 periods (6 lec.)

### Plumbing

WOL 141 Plumbing I /6 cr. hrs./6 periods (6 lec.)

WOL 142 Plumbing II /6 cr. hrs./6 periods (6 lec.)

WOL 143 Plumbing III /6 cr. hrs./6 periods (6 lec.)

WOL 144 Plumbing IV /6 cr. hrs./6 periods (6 lec.)

WOL 145 Plumbing V /6 cr. hrs./6 periods (6 lec.)

WOL 146 Plumbing VI /6 cr. hrs./6 periods (6 lec.)

WOL 147 Plumbing VII /6 cr. hrs./6 periods (6 lec.)

WOL 148 Plumbing VII /6 cr. hrs./6 periods (6 lec.)

### Painting

WOL 151 Construction Painting I /6 cr. hrs./6 periods (6 lec.)

WOL 152 Construction Painting II /6 cr. hrs./6 periods (6 lec.)

# Selected Policies, Governance and Faculty

## Selected Board Policies

The following policies address the College's compliance with a variety of federal anti-discrimination laws and also give details on where complaints should be filed. The College makes every effort to resolve the complaints of persons who feel that their rights have been infringed upon or that they have been discriminated against.

### Affirmative Action/Equal Opportunity

Pima County Community College District reaffirms its commitment to affirmative action and equal employment opportunity for all qualified persons without regard to race, color, national origin, religion, sex, sexual orientation, disability, age, or on the basis of membership as set forth in USERRA, or on any other basis which is proscribed by law.

It is the policy of Pima County Community College District that equal employment opportunity can only be achieved through demonstrated leadership and aggressive implementation of a viable affirmative action program. Therefore, the Pima County Community College District Affirmative Action and Equal Employment Opportunity Policy sets forth responsibilities for administrators, supervisors, faculty, staff, and all other members of the College. This policy shall be administered without regard to race, color, national origin, religion, sex, sexual orientation, disability, age, or on the basis of membership as set forth in USERRA, or on any other basis which is proscribed by law, except where gender, religion, national origin, or age is a bona fide occupational requirement.

Pima County Community College District will assure full participation of all persons contracting or providing services to the College.

The Board of Governors of Pima County Community College District has affirmed that the College is an equal educational/employment opportunity institution. College discrimination policies apply to all students and to all educational programs, services, activities, and facilities, as well as to all employees and all terms and conditions of employment.

To inquire about filing a discrimination complaint, contact an Intake Interviewer designated to serve your campus. For general information related to discrimination or Title IX issues, the College's discrimination/sexual harassment complaint procedure, or the rights and protections afforded by the ADA, contact Terry Flores, Affirmative Action Officer, at the Pima Community College District Office, 4905C East Broadway Blvd., Tucson, AZ, 85709-1310, (520) 206-4539. Every effort will be made to maintain the highest level of confidentiality.

### 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 harassment will be tolerated, including 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 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 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 sexually harassing or offensive conduct, 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 questions or concerns regarding these policies contact the District EEO/AA office at (520) 206-4539***



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 harassment has a responsibility to report the complaint as soon as possible. Issues of harassment covered by EEO laws should be directed to the Affirmative Action office or to any Intake Interviewer on any of the campuses or at the District 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.

**ADA & Equal Opportunity Discrimination  
Contact District EEO/AA office**

**206-4539**

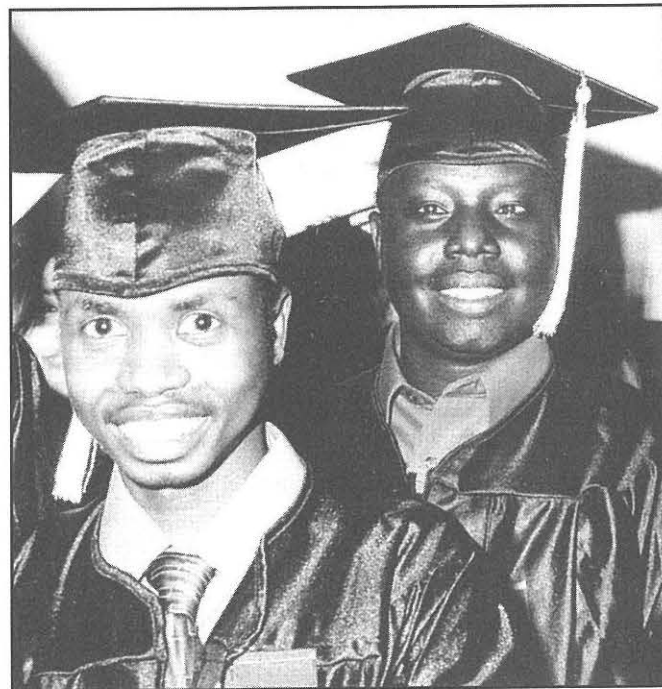
**Americans with Disabilities Act**

It is the policy of Pima County Community College District to comply with the Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973 as amended, as well as other applicable federal and state laws and regulations that prohibit discrimination on the basis of disability. No qualified person will, because of disability, be denied access to, participation in, or the benefits of any program, activity, or service offered by the College.

The College will make every effort to (1) ensure that qualified individuals with a disability are provided a reasonable accommodation, and (2) promote respect for the dignity and equal treatment of individuals with disabilities.

**Equal Educational Opportunity Policy**

The Board of Governors affirms that the Pima County Community College District is an equal educational opportunity institution. In support of this commitment, the Board of Governors authorizes and directs the Chancellor to implement regulations and procedures to facilitate opportunity for equal access to, retention in, and completion of College educational programs.



## Pima County Community College District Board of Governors

Marty Cortez  
Dr. Brenda B. Even  
Richard G. Fimbres  
Sherryn S. Marshall  
Scott A. Stewart

**Term Expires**  
District 5, Dec. 2006  
District 1, Dec. 2008  
District 2, Dec. 2004  
District 3, Dec. 2006  
District 4, Dec. 2004

## College District Administrators

**Dr. Roy Flores**, Chancellor

**Dr. Suzanne L. Miles**, Provost and Executive Vice Chancellor for Academic Services

**Charlotte A. Fugett**, Executive Vice Chancellor for Human Resources and Institutional Effectiveness

**John Gabusi**, Vice Chancellor for Enrollment Services and External Relations

**Janice M. Stroh**, Vice Chancellor for Finance and Administrative Services

**Jana B. Kooi**, Campus President, Community Campus

**Dr. Richard Durán**, Campus President, Desert Vista Campus

**Dr. Raul Ramirez**, Campus President, East Campus

**Dr. Noelia Vela**, Campus President, Downtown Campus

**Dr. Anne-Marie McCartan**, Campus President, Northwest Campus

**Dr. Louis Albert**, Campus President, West Campus



## District Office

### Office of the Chancellor

#### Dr. Roy Flores, Chancellor

B.S., M.S. Indiana State University; Ph.D. Iowa State University

#### Philanne Y. Burke, Senior Assistant to the Chancellor

B.A. University of Kansas; M.A. University of Arizona

### Office of the Provost and Executive Vice Chancellor for Academic Services

#### Dr. Suzanne L. Miles, Provost and Executive Vice Chancellor for Academic Services

B.S. Northwestern University; M.A. Arizona State University; Ph.D. University of Arizona

#### Shelley J. Fortin, Assistant Vice Chancellor for Student Services

B.A. Stonehill College; M.A., American International College

#### Sarah Dempsey, Assistant Vice Chancellor for Academic Services

B.S., M.S. Marshall University

### Office of the Vice Chancellor for Enrollment Services and External Relations

#### John Gabusi, Vice Chancellor for Enrollment Services and External Relations

B.A. University of Arizona; Ph.D. (Honoris Causa) Lincoln University

#### Cheryl M. House, Executive Director, Pima Community College Foundation

B.S., Bowling Green State University

### Office of the Vice Chancellor for Finance and Administrative Services

#### Janice M. Stroh, Vice Chancellor for Finance and Administrative Services

B.A., M.B.A. Washington State University

#### Assistant Vice Chancellor for Financial Operations, Vacant

#### Paul F. Smith, Assistant Vice Chancellor for Administrative Services and Facilities

B.S. University of Arizona; M.S. Georgia College

### Office of the Executive Vice Chancellor for Human Resources and Institutional Effectiveness

#### Charlotte A. Fugett, Executive Vice Chancellor for Human Resources and Institutional Effectiveness

B.S. Longwood College; M.B.A. University of Richmond

#### Jack Redavid, Assistant Vice Chancellor for Human Resources

B.A. University of Arizona

### Office of the Vice Chancellor for Information Technology

#### Ann Strine, Vice Chancellor for Information Technology

B.A. Texas Christian University; M.A. Indiana University

## Community Campus

#### Jana B. Kooi, Campus President

B.A. Calvin College; M.A. Western Michigan University

#### Dean of Instruction, Vacant

#### James E. Johnson, Dean of Student Development

B.B.A. Marshall University; M.B.A. Murray State University

#### Dr. Johnson Bia, Dean of Workforce and Business Development

B.S., M.S. University of Arizona; Ph.D. Iowa State University

#### Gregory N. Hart, Dean of Pima Community College Adult Education

B.A., M.Ed. University of Arizona

#### Cynthia D. McCafferty, Division Dean of Instruction

A.A. Bronx Community College; B.S. State University of New York; M.Ed., Northern Arizona University

#### Linda M. Andrews, Division Dean of Center for Business Solutions

B.S., Central Michigan University; M.Ed. University of Arizona

#### Dr. Cynthia M. Meier, Division Dean of Pima Community College Adult Education

B.S., M.A. Eastern Michigan; Ph.D. University of Arizona

## Desert Vista Campus

#### Dr. Richard Durán, Campus President

B.A., M.A. Adams State College; Ed.D. University of Northern Colorado

#### Dr. John R. Madden, Dean of Instruction

B.A., M.A. Western Michigan University; Ed.D. University at Albany

#### Dean of Student Development, Vacant

#### Elizabeth E. Wheeler, Division Dean of Instruction

B.A., M.A. University of Texas-El Paso

## Downtown Campus

#### Dr. Noelia Vela, Campus President

B.A., M.A. Illinois State University; C.A.S. San Diego State University; Ed.D. University of San Diego

#### Dr. Harry Muir, Dean of Instruction

B.S., M.S. University of Kansas; Ph.D. Kansas State University

#### Cecilia E. Lou, Dean of Student Development

B.A. Southwest Texas State; M.S. University of Rhode Island

#### Anne M. Vosberg, Division Dean Student Support Services

B.A. Smith College; M.Ed. The University of Arizona

#### Dr. John J. Merren, Instructional Division Dean Business and Liberal Arts

B.S., B.A., M.A. Lamar University; M.Ed., Ph.D. University of Arizona

#### Victoria H. Cook, Instructional Division Dean Science and Communication Arts

B.A., M.A. University of Arizona

#### Terry T. Forster, Division Dean of Industrial and Technical Education

A.A., A.A.S. Pima Community College

## East Campus

### **Dr. Raul Ramirez, Campus President**

B.A., M.S. The University of Texas-El Paso;  
Ed.D. New Mexico State University

### **Dr. Sylvia M. Lee, Dean of Instruction**

B.A., M.Ed. University of Arizona; Ph.D. Arizona State University

### **Dr. Shirley Y. Jennings, Dean of Student Development**

B.A. Central State University; M.Ed. Howard University;  
Ph.D. University of Maryland at College Park

### **JoAnn Rust, Division Dean of Instruction**

B.S. University of Utah; M.S. University of Arizona

### **Jeannette Studer, Division Dean of Instruction**

B.S., M.S. University of Wyoming

## Northwest Campus

### **Dr. Anne-Marie McCartan, Campus President**

B.A., M.P.A. University of Washington;  
Ed.D. Harvard Graduate School of Education

### **Dr. Rosemarie Schulz, Dean of Instruction**

B.A., M.S. University of Wisconsin; Ph.D. University of Wisconsin

### **Dean of Student Development, Vacant**

### **Robert G. House, Division Dean of Instruction**

B.A. University of Texas at Austin; M.S. North Texas State University

## West Campus

### **Dr. Lou Albert, Campus President**

B.S. Loyola College of Maryland; M.S. University of Maryland;  
Doctor of Humane Letters Cuttington University College;  
Ph.D. University of Maryland

### **Dean of Instruction, Vacant**

### **Nancee J. Sorenson, Dean of Student Development**

B. S., M.S. Indiana State University

### **Richard A. Patze, Instructional Division Dean Health Related Professions**

B.S. University of Arizona; M.Ed. Northern Arizona University

### **Michael B. Curry, Instructional Division Dean Business, Computer, and Human Sciences**

B.S. Wheeling College; M.M. Utah State University

### **Dr. Frank Pickard, Instructional Division Dean Visual and Performing Arts**

B.A., M.A. New Mexico State University; M.F.A, Ph.D. University of Arizona

### **Dr. Ann Christensen, Instructional Division Dean Math and Science Technology**

B.Sc., M.Sc. Concordia University; Ph.D. Queen's University at Kingston

### **Dr. Martin C. Sade, Instructional Division Dean Communications and Humanities**

B.S. Michigan State University; M.S. San Jose State University; Ph.D. University of Arizona

### **Mary E. Elasowich, Division Dean Student Support Services**

B.A. University of Massachusetts; M.A. Assumption College

## 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

## Distinguished Staff Status

The Board of Governors confers Distinguished status on retired College staff to signify honor and respect for outstanding accomplishments and contributions to the College over many years. Staff members receiving such an award exemplify the characteristics of the ideal community college. Through their professional careers at Pima Community College, these distinguished individuals have contributed significantly to their areas of service, professional organizations, their campuses, the Central Office, the College district, and the community.

Emily McMillin	1996
Harold Thompson	1996

# Pima Community College Faculty

## Cynthia A. Adams, Fitness & Sport Sciences (1990)

B.S. Salem College; M.S. Cortland State University-New York

## Alice L. Adamson, Mathematics (1992)

B.S. Maryville College; M.S. California State University-Hayward

## Darla J. Aguilar, Mathematics (1999)

B.S. Eastern Montana College; M.A. University of Arizona

## Richard Alvidrez, Technology Education, Electronics (2002)

B.A. M.A. California State University

## Carmen Amavizca, Writing (1999)

B.A., M.A. University of Arizona

## Barbara M. Anderson, Early Childhood Education & Cooperative Education (1970)

A.A. Cochise College; B.S., M.Ed. University of Arizona

## Emily Andujo, Dental Hygiene Education (1991)

A.A. Rio Hondo Community College; A.S. Cerritos Community College; B.S. California State University-Long Beach; M.S. California State University-Los Angeles

## Dr. Cynthia A. Arem, Psychology (1975)

B.A. City University of New York-Brooklyn; M.S. City University of New York-City College; Ph.D. University of Arizona

## Barbara C. Armenta, Mathematics (1991)

A.S. Pima Community College; B.S. Indiana University of Pennsylvania; M.Ed. University of Arizona

## Antonio Arroyo, Librarian (1996)

A.A. Fullerton College; B.A. Whittier College; M.S. California State University-Fullerton

## Max R. Atwell, Dental Lab Technology (2002)

A.A. Pima Community College; B.S. Northern Arizona University

## Gun E. Bailey, Speech (1973)

B.A., M.A. University of Arizona

## Kay S. Baker, Nursing (1978)

B.S.N. Arizona State University; M.Ed., M.S. University of Arizona

## Dr. Robert K. Baker, Librarian (1997)

B.A. California State University-Northridge; M.A., M.L.S. University of California-Los Angeles; Ed.D. Northern Arizona University

## Pamela A. Barnes, Writing (1974)

B.A. Cedar Crest College; M.A. Seton Hall University; M.Ed. University of Arizona

## Stewart F. Barr, IV, Humanities and Philosophy (1986)

A.A. Pima Community College; B.A., M.A. University of Arizona

## John Barrowman, Aviation Technology (2002)

A.A.S. Pima Community College; B.S. University of Phoenix

## Marie I. Barrentine, Nursing (1990)

B.S.N. State University of New York-Plattsburgh; M.R.C. Arkansas State University; M.S.N. University of Colorado

## 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.L.S. University of Arizona

## Robert P. Beitz, Psychology (1979)

A.S. Mercer County Community College; B.A., M.Ed., Ed.S. University of Arizona

## Sandra M. Bejarano, Biology (1993)

B.S. University of Arizona; M.Ed. Northern Arizona University

## Rebecca Bennett, Spanish (2002)

B.A. University of California; M.A. Middlebury College

## Michael Bezusko, Physics (2000)

B.S. Kentucky Wesleyan

## Dr. David R. Bishop, Philosophy (1997)

B.A., M.A. St. Louis University; M.A. Institute of Transpersonal Psychology; M.Div. Loyola University; Ph.D. Pacific Western University

## Kathy A. Blicharz, Computer Science (1982)

A.A.S. Pima Community College; B.S., M.Ed. University of Phoenix

## G. Lynn Bonner, Speech (1971)

B.A., M.A. Western Michigan University; M.Ed. Northern Arizona University

## Dr. Aristeo Brito, Spanish (1970)

B.A. Sul Ross State College; M.A., Ph.D. University of Arizona

## Monica J. Brito, Spanish (1992)

B.A. St. Francis College; M.A. University of Arizona

## Dr. Dillard S. Broderick, Computer Science (1974)

B.S., M.S. Brigham Young University; Ph.D. Arizona State University

## Dr. Richard L. Brodesky, Writing (1978)

B.A. Brandeis University; M.A., Ph.D. Harvard University

## Gigi D. Brown, Design (1990)

B.S. University of Arizona; M.A. Northern Arizona University

## Theresa A. Brown, Computer Software Applications (2000)

A.A. Spokane Community College; B.A. Eastern Washington University

## Yvonne M. Brown, Mathematics (1992)

B.S. University of Southern Colorado; M.A. University of Arizona

## Galen Brubaker, Building Technology (1997)

B.S. Wayland Baptist University; M.S. Troy State University

## David K. Bruce, Administration of Justice (1975)

B.S. Central Missouri State University; M.S. California State University-San Jose

## Kelly F. Brumbaugh, Automotive Technology (1992)

A.S. Pima Community College; B.S. Northern Arizona University; M.A. Chapman University

## Nancy E. Buchanan, Librarian (1974)

B.A., M.L.S., M.A. University of Arizona

## Ellyn E. Bulkowski, Nursing (1991)

B.S.N. University of Massachusetts; M.N. Emory University

## Margo J. Burwell, Communications Graphics (2000)

B.A. University of Arizona

## Nicholas C. Busch, Biology (1969)

B.A. Sonoma State College

## Ellen F. Caldwell, Mathematics (1983)

B.A. Randolph Macon Women's College; M.A. University of Wyoming

## Dr. Teresa Isabelle Daza Campbell, Business (1998)

B.S., M.S., Ph.D. University of Arizona

## Richard Canole, Fitness & Sports Science (2002)

B.S. Saginaw Valley State University; M.S. Michigan State University

## Elma B. Carrillo, Spanish (1995)

B.A., M.Ed. University of Arizona

## Dr. Jefferson M. Carter, Writing (1977)

B.A. Pomona College; M.A., Ph.D. University of Arizona

## P. Michael Carter, Educational Support Faculty (1977)

B.A. University of Arizona; R.T. Tucson Medical Respiratory Therapy; M.Ed. Northern Arizona University

## Roberta L. Casper, Mathematics (1999)

A.S. Pima Community College; B.S., M.Ed. University of Arizona

## Guadalupe Castillo, History (1991)

B.A., M.A. University of Arizona

## Ricardo Castro-Salazar, Business (1999)

B.S. Instituto Tecnológico de Sonora; M.A. University of Amsterdam; M.A. University of Arizona; M.Ed. La Salle University-Mexico City

## Sandra J. Chan, Librarian (1982)

A.A. Pima Community College; B.A., M.L.S. University of Arizona

## Anthony M. Chana, Counselor (1971)

A.A. Phoenix College; B.A. Arizona State University

## Gustavo A. Chavez, Counselor (1982)

A.A. Mesa Community College; B.A., M.A. Arizona State University

## Dr. Kenneth R. Chiaro, History (1975)

B.A., M.A., Ph.D. University of Arizona

## Dr. Ann A. Christensen, Biology (1992)

D.C.E. Mariapolis College; B.S., M.S. Concordia University; Ph.D. Queens University

## Dr. Nancy G. Christie, Psychology (1993)

B.A., M.S., Ph.D. University of Arizona

## Bruce C. Clark, Art (1990)

B.F.A. University of Georgia; M.F.A. University of Arizona

## Gary Clouser, Nursing (2002)

A.A.S. Western New Mexico University; B.A. University of Virginia; M.S. University of New Mexico

## J. Scott Collins, Mathematics (1994)

B.S., M.S. Virginia Polytechnic Institute

## Doris J. Conley, Counselor (1977)

A.A. Pima Community College; B.S., M.S. University of Arizona

## Janine L. Conners, Nursing (1998)

B.S. Northern Arizona University; M.S.N. University of Hawaii

## Victoria H. Cook, History (1997)

B.A., M.A. University of Arizona

## Alan E. Coons, Mathematics (1983)

A.A. Cochise Community College; B.S., M.S. Northern Arizona University; M.B.A. University of Arizona

## Dr. Al L. Cooper, Spanish (1994)

A.A. Bakersfield College; B.A. University of Nevada; M.A., Ph.D. University of Arizona

## Karen S. Corbett, Nursing (2001)

B.S. University of Wisconsin-Milwaukee M.S. University of Wisconsin-Madison

## Barbara Cortes, Counselor (2002)

B.S. Northern Arizona University; M.A. Chapman University

## Timothy M. Cote, Aviation Technology (1992)

## Ronald D. Crabtree, Humanities (1999)

B.A., M.A. Washington University

**Dr. Amy Cramer, Business and Economics (2002)**

B.A., M.A. Ph.D. University of Massachusetts

**Barbara J. Crowley, Dental Assisting Education (1975)**

C.D.A. Certified Dental Assistant; B.A., M.Ed. University of Arizona

**Guadalupe A. Cruikshank, Spanish (2001)**

B.A., M.A. University of Arizona

**Kathleen Fockler Curley, Librarian (1991)**

B.A., M.A., M.L.S. University of Arizona

**Dr. John P. Dailey, Hospitality (1992)**

B.S. Bryant College; M.A. University of Phoenix; Ed.D. Northern Arizona University

**Dr. Daniel Davidson, Physics (1971)**

B.S. University of Rochester; Ph.D. University of Arizona

**Dr. James De La Rosa, Biology (1994)**

B.S. University of Southern California; M.S., Ph.D. Cornell University

**James DeLaune, Computer Information Systems (2002)**

B.S., M.B.A. University of Florida

**Francisco O. Delgado-Duran, Landscape Technology (1990)**

B.S. University of Chihuahua; M.S. University of Arizona

**Mic R. Denfeld, Writing (1992)**

A.A. Southeast Iowa Area Community College; B.A. Iowa Wesleyan College; M.A. Western Illinois University; M.A. Iowa State University

**Dr. Daniel A. DeNoon, Jr., Veterinary Technology (2001)**

B.S. Kansas State University; M.Ph. University of Minnesota; D.V.M. Kansas State University

**Randall D. Dings, Radiologic Technology (1998)**

B.S. Indiana University

**Susan Dobyms, Anthropology/Sociology (2002)**

B.S. University of Minnesota; M.A., Ph.D. University of Arizona

**Shelley Dorsey, Writing (2002)**

B.A., M.A. University of Arizona

**Allan E. Doyle, Accounting and Business (1977)**

B.A. John Hopkins University; M.B.A. New York University; M.A. University of Arizona; C.P.A. Certified Public Accountant

**David Druml, Computer Information Systems (1998)**

B.A. Milwaukee School of Engineering; M.S. University of Phoenix

**Dr. Dolores Duran-Cerda, Spanish (2002)**

B.A. University of Iowa; M.A., Ph.D. University of Arizona

**Dr. Jody Lee Estrada Duek, Biology (2001)**

B.S. University of Houston; M.A. California State University at Northridge; Ph.D. University of California-Los Angeles

**Roggie H. Edberg, Counselor (1989)**

B.A. Mills College; M.Ed. University of Arizona

**Barbara E. Elguta, Counselor/PCAE Bridge (2000)**

B.S. University of Wisconsin-Stevens Point; M.S. University of Wisconsin-Madison

**Dr. Michael S. Engs, Counselor (1977)**

B.A. College of William and Mary; M.Ed. University of Arizona; Ed.D. Northern Arizona University

**Vernone H. Erickson, Nursing (1992)**

B.S.N. Gustavus Adolphus College; M.S. University of Arizona

**J. Philip Evans, Counselor (1990)**

B.A., B.A., M.Ed. University of Arizona

**John J. Evans, Computer Information Systems (2000)**

B.S., Wayne State University

**Dr. Ronald J. Evans (2001)**

B.S., M.S., Ph.D. Purdue University

**Christina B. Felty, Art (1997)**

B.F.A. Virginia Commonwealth University; M.A. University of Arizona

**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

**Maria Luisa Figueroa, Spanish and English as a Second Language (1979)**

B.A., M.A. University of Arizona; M.A. Southern Illinois University

**Margaret K. Files, Writing (1987)**

B.A., M.A. University of Illinois

**Georgianne R. Fimbres, Design (1971)**

B.S., M.Ed. University of Arizona

**Paul A. Flasch, Mathematics (1994)**B.S. St. John's University; M.S. North Dakota State University  
Rita V. Flattley, Psychology (1991)**A.A. Pima Community College; B.A., M.Ed. University of Arizona****Joyce A. Flieger, Dental Hygiene Education (1991)**

B.S.D.H. University of Southern California; M.P.H. University of Michigan

**Vicci L. Fox, Reading (1993)**

B.S. North Texas State University; M.Ed. University of Arizona

**Martha L. Frailey, Reading (1990)**

B.S. University of Dayton; M.Ed. University of Arizona

**Anne R. Franklin, Mathematics (1990)**

B.A. Goddard College; M.A. University of Arizona

**Melinda Franz, Counselor (1999)**

A.A. Pima Community College; B.A. University of Arizona; M.A. Chapman University

**Kathy Fraychineaud, Sign Language (2002)**

B.S. Northeastern University; M.A. University of Arizona

**Dr. Richard H. Fridena, Sociology (1981)**

B.A. University of Arizona; M.S.W. Arizona State University; Ph.D. University of Arizona

**Margaret M. Fried, Nursing (1982)**

B.S.N. College of St. Teresa; M.A. University of Washington

**Duff C. Galda, English as a Second Language (1997)**

A.A. Glendale Community College; B.S., M.Ed., M.Ed., M.Ed. Northern Arizona University

**Patricia A. Gardiner, Communications Graphics (2000)**

A.S. Pima Community College

**Earl D. Garrick, Building & Construction Technology (2002)**

A.A. Central Arizona College

**Kristine M. Gauss, Mathematics (2000)**

B.A., M.A., M.Ed. California State University-Fullerton

**Simone Gers, Writing (1998)**

B.A., M.A. University of Houston-Clear Lake

**Donna H. Gifford, Astronomy (1999)**

B.A., M.S. University of Arizona

**Dr. Mary K. Gilliland, Anthropology (1989)**

B.A. Bryn Mawr College; M.A., Ph.D. University of California-San Diego

**James R. Goff, Physics (1971)**

B.A. Nebraska Wesleyan University; M.S. Case Institute of Technology

**Bonnie J. Golden, Counselor (1987)**

A.A. Southwest College; B.S. University of Illinois; M.Ed. University of Arizona

**Dr. Linda Gail Gonzales, Psychology (1999)**

B.A. Southwest Texas State University; M.A., Ph.D. University of Texas

**Julia V. Gousseva-Goodwin, Writing (2001)**

B.A. Moscow State Linguistic University; M.A. University of Arizona

**Darryl Graham, History (1995)**

B.A. Queens College; M.A. Long Island University; M.A. University of Wisconsin

**Elena Grajeda, Languages (1999)**

B.A., M.A. University of Arizona

**Lisa M. Grenier, Mathematics (1979)**

B.A. Kutztown State College; M.A. University of Arizona

**Lori Grimm, Reading (1996)**

B.A. Fort Lewis College; M.A. University of Arizona

**Guadalupe A. Gutierrez, Nursing (1989)**

R.N., 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

**Ronald D. Hale, Automotive Technology (1997)**

A.A.S. Pima Community College

**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

**Roxanne S. Harley, Counselor (1980)**

B.Ph. Grand Valley State University; M.Ed. University of Arizona

**Betty G. Harris, Art (1977)**

B.S. Pratt Institute; M.F.A. University of Arizona

**Dr. Donald S. Hayes, Physics (1991)**

B.A. Pomona College; M.A., Ph.D. University of California-Los Angeles

**Susan L. Heinrich, Fitness and Sport Sciences (1993)**

B.S. University of Arizona; M.S. University of Wisconsin-La Crosse

**Dr. Andrea K. Henderson, Early Childhood Education (1993)**

B.S. Wayne State University; M.Ed. University of Arizona; Ed.D. Northern Arizona University

**Cynthia P. Hermann, Nursing (1988)**

B.S.N. Philippine Women's University; M.S. University of Michigan

**Mark R. Heywood, Aviation Technology (2000)**

A.A.S. Pima Community College

**Perry Higgins, Mathematics (1996)**

B.S. United States Naval Academy; M.A. California State University-Dominguez Hills

**Dr. Doug Holland, Reading and Writing Development (2002)**

B.A. Arizona State University; M.S., Ed.D. Northern Arizona University



**Maria A. Holmberg, Counselor (1995)**

B.A., M.S. University of Arizona

**Mark S. Homan, Social Services (1978)**

B.A. University of Arizona; M.S.W. Arizona State University

**Lloyd J. Homewood, Mathematics (1988)**

B.A. University of Oregon; B.S., M.S. Portland State University

**Dr. Lazaro M. Hong, Technology Education (2000)**

B.S., M.A. University of Southern California; Ph.D. University of Arizona

**Pamela B. Horch, Dental Assisting (1989)**

A.A. Pima Community College; A.A. Phoenix College; B.S., M.Ed. Northern Arizona University

**Ann W. Houck, Computer Information Systems (1982)**

A.A.S. Pima Community College; B.S. University of Arizona; M.Ed. University of Phoenix

**Patricia G. Houston, Spanish (1989)**

B.A. Syracuse University; M.A. Universidad de las Americas

**Beth B. Hunter, Counselor (1999)**

B.A. St. Olaf College; M.A. Vermont College of Norwich University

**Dr. David G. Iadevaia, Physics and Astronomy (1984)**

A.S. Community College of Rhode Island; B.A. University of Rhode Island; M.A.T. Rhode Island College; Ph.D. Pacific Western University

**Dr. Carolina Ibanez-Murphy, Spanish (1998)**

B.S. Marywood College; B.A. Western Michigan University; M.A., Ph.D. University of Arizona

**Barry T. Infuso, Culinary Arts (2000)**

A.A. Foothill Community College; B.A. University of California-Berkeley

**Francisca James-Hernandez, Anthropology (1998)**

B.A., M.A. Stanford University

**John F. Jarchow, Construction Technology (1978)**

B.Arch. University of Arizona; R. Arch. Registered Architect; M.Ed. Northern Arizona University

**Susan T. Jensen, Mathematics (1992)**

B.Math., M.Ed. University of Minnesota

**BethAnn Monier Johnson, Early Childhood Education (1992)**

B.A. University of South Carolina; M.Ed. University of Arizona

**MaryAnn Jones, Biology (1991)**

B.A. University of Arizona; M.A. Texas Tech University

**Mary A. Jordan, Pharmacy Technology (1990)**

B.S. University of Colorado; R.Ph. Registered Pharmacist; M.Ed. Northern Arizona University

**Sharon Anne Jordan, Counselor (1992)**

A.A. Pima Community College; B.A. Prescott College; M.A. Vermont College of Norwich University

**Dr. Thomas T. Jordan, Biology (1999)**

B.A. State University of New York; D.C. Western States Chiropractic College

**Lisa A. Jurkowitz, English as a Second Language (2001)**

B.A., M.A. University of Arizona

**Bruce G. Karam, Counselor (1986)**

B.A., M.Ed. University of Arizona

**Jennifer B. Katcher, (Biology) (2001)**

B.A. University of Arizona; M.S. University of California-Davis

**David Katz, Chemistry (2002)**

B.S. Drexel University; M.S. Villanova University

**Dr. Colleen Kelley, Chemistry (2002)**

B.S. University of Richmond; Ph.D. Pennsylvania State University

**Billy D. Kidd, Chemistry (2000)**

B.S. Auburn University; M.S. Florida State University

**Brian M. King, Computer Aided Drafting (CAD) (1983)**

B.Arch. University of Arizona; M.A. Northern Arizona University; R.Arch. Registered Architect

**James L. Knight, Writing (1991)**

A.A. Corning Community College; B.A. Amherst College; M.Ed. University of Massachusetts

**Dr. Silvia Kolchens, Mathematics and Sciences (1995)**

B.S., M.S., Ph.D. University of Cologne

**John A. Kordich, Fitness and Sport Sciences (1997)**

B.S., M.Ed. University of Wisconsin-Whitewater

**Steve J. Kusnir, Mathematics (1996)**

B.Math, M.Math University of Waterloo; B.Ed. University of Toronto

**Joseph K. Labuda, Librarian (1990)**

B.A. State University of New York-Plattsburgh; M.L.S. University of Arizona

**Dr. Darla Lammers, Legal Assistant Program (1995)**

B.A., J.D. University of Arizona

**Charles A. Land, Mathematics (1978)**

B.S. Morehouse College; M.Ed. University of Arizona

**Dennis C. Landry, Communications Graphics (1999)**Kathryn L. Larch, Humanities and Religious Studies (1989)  
A.A. Maricopa Technical College; B.A., M.A. University of Arizona**Mickey Levendusky, Mathematics (1991)**

B.A., B.A., M.A. University of Arizona

**Patricia A. Leverentz, Writing (2001)**

B.S. Manchester College; M.S. Indiana University

**Dr. Alvin D. Lewis, Social Services (1997)**

A.S. Tidewater Community College; B.S.W. Norfolk State University; M.S.W. Temple University; Ed.D. Nova Southeastern University

**Tana R. Liley, Dental Hygiene (1997)**

A.A.S. El Paso Community College; B.S. Texas Women's University; M.S. Texas A &amp; M

**Jean M. Lindeberg, Biology (1974)**

B.S. Montana State University; M.S. University of Arizona

**Jo Ann B. Little, Writing, Humanities, and Literature (1976)**

B.A., M.Ed. University of Arizona

**Jerald L. Logan, Machine Tool Technology (2001)**

B.A. Eastern Washington University

**Roxanne C. Lovio, Counselor (1999)**

B.A. University of Arizona; M.Ed. Northern Arizona University

**Diane C. Lussier, Mathematics (1999)**

B.A., M.A. California State University-Fullerton

**Linda B. Lynn, Economics and Business (1988)**

B.S., B.A., M.B.A. University of Arizona; M.A. Indiana University

**Steven A. Mackie, Biology (1997)**

B.S. Arizona State University; M.S. University of Arizona

**Paul Malanga, Writing (1987)**

B.A., M.A. University of Arizona

**Dr. Linda Y. Maluf, Biology (1993)**

B.S., M.S., Ph.D. University of Arizona

**Sharin E. Manion, Sign Language (1992)**

B.A. State University of New York-Potsdam; M.S. Gallaudet College; M.Ed. University of Arizona

**Dr. Ana M. Mantilla, Mathematics (1996)**

B.S. Universidad Nacional de Trujillo; M.S., Ph.D. Northwestern University

**Adolfo P. Marquez, Welding Technology (1976)**

Cert. Welding Engineers Testing Laboratory; A.A. Pima Community College

**William B. Martin, Mathematics (1984)**

B.A., M.S. Western Michigan University

**Evelyn L. Martinez, Counselor (1989)**

B.A. University of Arizona; M.Ed. George Mason University

**Uvaldo M. Martinez, Counselor (1999)**

A.A. Palomar Community College; B.B.A., M.A. National University

**Dr. Mary Ann Martinez Sanchez, Psychology (1996)**

B.A. Duke University; M.A., Ph.D. University of Notre Dame

**Shelley A. Maxfield, Biology (1982)**

B.S. Central State University; M.S. University of Arizona

**David L. May, Engineering (1971)**

B.S.E.E., M.A. Mathematics University of Arizona

**Marty L. Mayhew, Nursing (1998)**

B.S.N. University of Nevada; M.S. University of Southern California; M.S. University of Colorado

**Jane L. McCabe, Reading (1993)**

B.A. Michigan State University; M.Ed. University of Arizona

**Dr. Mark J. McCabe, Counselor (1978)**

B.A. Michigan State University; M.Ed. University of Arizona; Ed.D. Northern Arizona University

**Dr. Mary Kris McIlwaine, Sociology (2002)**

M.A., Ph.D. University of Arizona

**Barbara McLaughlin, Art (2002)**

B.F.A. School of the Art Institute of Chicago; M.F.A., M.A. Northern Illinois University

**Christina McNearney, Art (2001)**

B.F.A., M.F.A. University of Arizona

**Dr. Gary E. Mechler, Astronomy (1984)**

B.S. University of Pittsburgh; M.S., Ph.D. Case Western Reserve University

**Kirk D. Mehtlan, Mathematics (2002)**

B.A. Shippensburg University; M.Phil. University of Arizona

**Dr. Denise Meeks, Astronomy and Physics (1996)**

B.S., M.S. University of Arizona; Ed.D. Northern Arizona University

**Philip D. Melton, Art (1992)**

B.F.A., M.F.A. University of Arizona

**Leticia I. Menchaca, Counselor (1991)**

A.A. Pima Community College; B.S., M.Ed. University of Phoenix

**Dr. Candido A. Mercado, Multidisciplinary Education (1989)**

B.A., M.A. University of Puerto Rico; Ph.D. University of Arizona

- Lillian L. Meriwether, Sign Language (1990)**  
B.S. East Texas State University; M.S. University of Arizona
- John B. Mertes, Communications Graphics (1990)**  
B.A., M.A. Arizona State University
- Louise A. Meyer, Writing and Literature (1970)**  
A.A. Springfield Junior College; B.S. St. Louis University; M.A. University of Minnesota
- Dr. John A. Miller, Business (1999)**  
B.S. University of Missouri; M.B.A. Florida State University; J.D. Widener University of Law
- Tommie R. Miller, Social Services (1989)**  
B.A. Ohio State University; M.A., M.C.P. University of Cincinnati; M.S.W. Arizona State University
- Darrell K. Mills, Administration of Justice Studies (2001)**  
B.A. Grove City College; M.A. Duquesne University
- Robert I Modica IV, Humanities (1992)**  
B.A., M.A., M.A. University of Arizona
- Becky J. Moore, Librarian (1972)**  
B.A., M.Ed. University of Arizona
- Deborah Morrison, Reading (2002)**  
B.S., M.A. University of Arizona
- Eric Morrison, Educational Support Faculty (1995)**  
A.A. Cabrillo Community College; B.A., M.S. California State University-Sacramento; M.A. University of Arizona
- Brigid Murphy, Writing (1999)**  
B.A. Montana State University; M.A. University of Texas
- Timothy Murphy, Educational Development (1974)**  
B.S.E. Western Illinois University; M.S.E. Eastern Illinois University
- Patricia A. Murray, Nursing (1992)**  
B.S.N. Villa Maria College; M.S.N. University of Pennsylvania
- Dr. Mark A. Nelson, Music (2000)**  
B.A. Point Loma Nazarene University; LTCL Trinity College of Music; M.Ed. University of Vermont; D.M.A. M.M. Arizona State University
- Dr. Jeffrey P. Neubauer, Psychology (1999)**  
M.S. University of Oregon; M.S. Western Washington University; Ph.D. University of Wyoming
- Richard E. Newton, Accounting (1975)**  
B.S. University of Wisconsin; M.S. University of Arizona
- Dr. Bernard Ngovo, Reading (1996)**  
B.S. Cuttington University College; M.S. State University of New York-Albany; M.A., M.S., Ed.D. Northern Illinois University-DeKalb
- Sandy Niederitter, Computer Software Applications (1999)**  
B.S., M.Ed. University of Arizona
- Luvy Nuanes, Spanish (2001)**  
A.A. Pima Community College; B.A., M.A. University of Arizona
- Catherine M. O'Brien, Radiologic Technology (1998)**  
B.S. St. Joseph's College; A.R.R.T. American Registry of Radiologic Technology; R.T.(M)(CV) Registered Technologist
- Joy D. O'Donnell, Legal Assistant Studies (1990)**  
A.A. Pima Community College; B.A. Prescott College; M.A. Regis University
- Sarah O'Hara, Writing (1999)**  
B.S., M.A. California State University
- Dr. Gregory E. Ogden, Environmental Technology and Chemistry (1995)**  
B.S. University of Washington; M.S. University of Colorado; Ph.D. University of Arizona
- Marcia Oppenheim, Reading (1994)**  
B.A. Pennsylvania State University; M.S. Long Island University
- James G. Osborn, Science and Technology-Math (1999)**  
B.S. University of Michigan; M.S. University of Idaho
- William H. Pagnotta, Computer Information Systems (1982)**  
A.A.S. Pima Community College
- Claire C. Park, Art (1978)**  
B.A. Scripps College; M.A., M.F.A. University of California-Los Angeles
- Christina G. Pereira, Developmental Writing (2001)**  
B.A., M.A. University of Arizona; M.B.A. University of Phoenix
- Eileen P. Perry, Music (1981)**  
B.M., M.M. University of Arizona
- Dr. Anthony Pitucco, Physics (1973)**  
B.S., M.Ed., M.S., Ph.D. University of Arizona
- Susan M. Pritchett, Computer Aided Drafting (2001)**  
A.A.S. Pima Community College
- Barbara Quaid, Business (2002)**  
B.S., M.Ed. University of Arizona
- Ernesto V. Quiroga, American Indian Studies (1991)**  
B.A. University of California; M.A. University of Arizona
- Nancy R. Ramirez, Literature and Writing (1992)**  
B.A. University of Pittsburgh; M.Ed. University of Texas-El Paso
- Terry Ramsey, Computer Information Systems (2002)**  
B.S. M.S. University of Arizona
- Steven R. Rankin, Writing and Literature (1970)**  
B.A., M.A.T. Washington University; M.A. University of Arizona
- Kevin Redig, Chemistry (1996)**  
B.S. United States Coast Guard Academy; M.S. University of Connecticut
- Abbie S. Reval-Smash, Counselor (2000)**  
B.S.W., M.S.W. New Mexico State University
- William J. Reynolds, Emergency Medical Technology (1978)**  
A.A. Pima Community College
- Theresa M. Riel, Mathematics (1996)**  
B.A., M.A. University of Arizona
- Vincent J. Riggs, Spanish (1988)**  
B.A. University of Northern Colorado; M.A. University of Arizona
- Donald R. Roberts, Business (1982)**  
B.A. University of Nebraska; M.S. George Washington University
- Irma Jean Rodriguez, Administrative Support Careers (1982)**  
B.S., M.Ed. University of Arizona
- Stephen W. Romaniello, Communication Graphics (1990)**  
B.F.A. University of Arizona
- Susan R. Rondeau, Counselor (1990)**  
A.A. Pima Community College; B.F.A., M.Ed. University of Arizona
- Linda Rousos, English as a Second Language (1996)**  
B.A., M.A. University of Illinois
- Medhi Sadatmousavi, Mathematics (1988)**  
B.S., M.S. University of Arizona
- Tommy M. Salazar, Machine Tool/Metallurgy (1999)**  
Certifications: Geometric Tolerance and Dimensioning, Compact II Numerical Control (Mill), Compact II Numerical Control (Lathe), Carbide Cutting Technology and High Efficiency Machining, Computer Numerical Control Programming, Bravo Draft Training, GEN/GSM Training, Smart-Cam 3-D.
- Susan San Jule, Writing (2002)**  
B.A. University of Washington; M.A. University of Arizona
- Katherine I. Sanchez, Chemistry (1990)**  
B.S., M.A. Northern Arizona University
- Lloyd J. Sandmann, Computer Software Applications (2000)**  
B.A. California State University-Long Beach
- Julia Santo, Nursing (1991)**  
B.A. University of Massachusetts; B.S.N. University of North Carolina; M.S. University of Arizona
- Erich C. Saphir, Political Science (1997)**  
B.A. University of Delaware; M.A. Fordham University
- Dr. Ann L. Schlumberger, Writing (1992)**  
B.A. University of Texas; M.A., Ph.D. University of Arizona
- Steve A. Schneider, Psychology (1972)**  
B.A., M.Ed., M.B.A. University of Arizona
- Duke G. Schoonmaker, Environmental Science (1992)**  
B.S. Northern Arizona University
- Jennie L. Scott, Counselor (1999)**  
B.A. University of Arizona; M.Ed. Northern Arizona University
- William Scurrah, Writing (1996)**  
B.A. Augsburg College; M.A., M.F.A. University of Arizona
- Jeffrey A. Scurran, Fitness and Sport Sciences (2002)**  
B.S. University of Florida; M.Ed. University of Arizona
- Dr. Thomas Selegue, Chemistry (2002)**  
B.S. Bowling Green State University; Ph.D. University of Illinois
- Douglas W. Shakel, Geology (1978)**  
B.S. California Institute of Technology; M.S. University of Arizona
- Donna A. Shay, Nursing (1991)**  
A.D.N. Broward Community College; B.S.N., M.S. University of Arizona
- Dr. Mary Shelor, Reading (1997)**  
B.S. State University College of New York; M.Ed., Ed.D. University of Arizona
- Mary F. Sibayan, Mathematics (1997)**  
B.S., M.S. University of Arizona; M.S.W. Arizona State University
- Ann Simmons-Myers, Art (1990)**  
B.A. Ohio State University; M.F.A. University of Arizona
- John Skapura, Computer Information Systems (2000)**  
Industry Certifications: Microsoft Certified Systems Engineer; Microsoft Certified Professional + Internet; Cisco Certified Network Associate; Cisco Certified Academy Instructor; Certified Novell Administrator; A+
- Edward D. Smith, Mathematics (2000)**  
B.S. Central State University; M.S. Ohio University

**Dr. Jacquelyn R. Smith, Biology (1998)**

B.A. Mills College; B.S., Ph.D. Old Dominion University

**Paula Smith-Hawkins, Sociology (2000)**

B.A., M.A. University of Missouri

**Dr. Larry J. Solomon, Music (1973)**

B.A. Allegheny College; M.M. University of Illinois; Ph.D. West Virginia University

**Rosalía Solorzano, Sociology (1997)**

M.A. University of Texas-El Paso; M.A. Webster University

**Benjamin F. Sorenson, Music (1978)**

A.A. Iowa Lakes Community College; B.M. University of Iowa; M.M. University of Arizona

**Carlos D. Sotomayor, Counselor (2000)**

B.A. University of Arizona; M.A. University of Phoenix

**Remedios R. Sotto, Counselor (1999)**

B.A. University of Southern California-Davis; M.S. University of Arizona; M.S. San Diego State University

**Raymond E. Sparks, Business and Marketing (1975)**

B.S., M.S. Northwestern State University

**Thomas M. Speer, Writing (1992)**

B.A. California State University-Fresno; M.A. San Francisco State University; Ph.D. University of Arizona

**Michael Stack, Art (2002)**

B.F.A. University of Pennsylvania; M.F.A. State University of New York

**Dr. Camille Stallings, Management & Marketing (1990)**

B.S. University of Illinois; M.A. University of Phoenix; Ed.D. Northern Arizona University

**Clarence H. Stanley, Mathematics (1999)**

B.S., M.Ed. University of Arizona

**Robin Steinberg, Mathematics (1992)**

B.S. State University of New York-Buffalo; M.A. University of Arizona

**Dr. David V. Stephen, Anthropology (1975)**

A.A. Long Beach City College; B.A. California State University-Long Beach; M.A., Ph.D. University of Arizona

**Arlene D. Stevens, English as a Second Language (1971)**

A.A. Queensborough Community College; B.A. Hunter College; M.A. University of Arizona

**Daniel David Stogsdill, Aviation Technology (1991)**

A.A. Pima Community College

**Mary Stout, Librarian (1999)**

B.A. California State University; M.L.S. University of California; M.A. University of Arizona

**Dottie K. Sutherland, Hospitality, Travel and Tourism (1995)**

B.A. Georgia State University

**Kristine Swank, Librarian (2001)**

B.A. Dana College; M.L.S. University of Arizona; M.I.M. Thunderbird AGSIM

**Louis Taber, Computer Information Systems (1985)**

B.S.E.E. University of Arizona; M.S. San Jose State University

**Michael R. Talbot, Geography (1998)**

B.S. Michigan State University; M.A. West Michigan University

**Donna T. Tang, Educational Support Faculty (1974)**

B.A. Boston University; M.L.S., M.S. University of Arizona

**Julie C. Tarr, Mathematics (1999)**

B.S. Northern Kentucky University; M.A. Miami University; M.S. Louisiana State University

**Hirotsune Tashima, Art (1999)**

B.F.A. Osaka University of Arts; M.F.A. Alfred University

**Agustín A. Taylor, Spanish (1987)**

B.A. University of Southern Illinois; M.A. Universidad de Guadalajara

**Leslie F. Taylor, German (1993)**

B.A., M.A., M.A. University of Arizona

**Dr. Tamara K. Thurston, Writing (2000)**

B.A., M.A. University of Maine; Ph.D. University of New Mexico

**Mary A. Tindall, Educational Support Faculty Advisor (1972)**

B.S.N., M.Ed., M.S.N. University of Arizona

**Thomas J. Tomasky, Computer Aided Drafting (2001)**

B.S. Millersville University; M.V.E. Northern Arizona University

**Dr. Renee F. Tossell, Radiologic Technology (1991)**

B.S., M.A. Northern Arizona University; Ph.D. University of Arizona; A.R.R.T. Registered Radiologic Technologist; A.R.R.T. Registered Mammographer; A.R.R.T. Registered Cardiovascular Interventional

**C. Ann Tousley, Writing (1992)**

B.S. Northwestern University; M.A. University of Arizona

**Ninfa Trejo, Librarian (2002)**

B.S. The Union Institute and University; M.L.S. San Jose State University

**Virginia R. Turner, Home Economics (1971)**

B.S. Bennett College; M.Ed. Wayne State University

**Michael S. Tveten, Biology (1992)**

A.A. Lee College; B.S., M.S. Texas A &amp; M University

**Laura E. Valdivia, Spanish (1999)**

B.A., M.A. University of Arizona

**Tineke Van Zandt, Anthropology and Archaeology (2000)**

B.A. Bryn Mawr College; M.A. University of Texas

**Mary E. Vaughan, Nursing (1999)**

B.S. Friends University; M.A. Webster University; M.N./E. University of Phoenix

**Dr. Marie L. Vergata, Counselor (1981)**

B.S. Adelphi University; M.Ed., Ed.D. University of Arizona

**Diane Viewing, Librarian (1999)**

B.A. University of Arizona; M.L.S. Southern Connecticut State University

**Nadia Villalobos, Administrative Support Careers (1970)**

A.A.S. Cochise Junior College; B.A., M.Ed. University of Arizona

**Dr. Sterling P. Vinson, Humanities & Art History (1995)**

B.A. Harvard University; Ph.D. University of Pennsylvania

**Kenneth Vordran, Writing (2001)**

B.A. University of Delaware

**Stephen A. Wallace, Humanities (1977)**

B.S. Georgetown University; M.A. University of Arizona

**Gaynelle Wasserberg, English as a Second Language (2002)**

B.S. Northern Arizona University; M.A. Northern Arizona University

**Judith Watry, Writing (2002)**

B.A. Smith College; M.A. Northern Arizona University; M.A. Clark University

**Wendy L. Weeks-Galindo, Chemistry (1999)**

B.S. University of LaVerne; M.S. University of Arizona

**Dr. Sou-Pen Wei, Computer Information Systems (1989)**

B.A., M.S. National Taiwan University; M.S. University of Arizona; Ph.D. University of Michigan

**George R. Welch, Art (1971)**

B.S. Central State University; M.S. Bank Street College of Education

**Sharon L. Welch, Accounting and Business (1970)**

B.S., M.Ed. University of Arizona; Certified Professional Secretary

**Dr. Paul J. Welsh, Mathematics (1976)**

B.S. John Carroll University; M.S., Ph.D. University of Notre Dame

**Roger T. Werbylo, Mathematics (1989)**

B.S., M.Ed. University of Arizona

**Dr. Lisa A. Werner, Biology (2000)**

B.S., University of California-Davis; Ph.D. University of Arizona

**Dr. Kathleen S. White, Humanities, Speech Communications, and English (1976)**

B.A., M.A. University of Utah; M.A., Ph.D. University of Arizona

**Kris White, Librarian (2002)**

B.A., M.A. University of Washington

**David J. Williamson, Mathematics (2001)**

B.S., M.A. University of Arizona

**Mark R. Willer, Computer Information Systems (2000)**

B.S. University of Arizona

**Julianna C. Wilson, History (1994)**

B.A., M.A. University of Arizona

**Christopher L. Wilken, Theater Arts (2002)**

B.F.A. University of Arizona; M.Ed. Northern Arizona University

**David L. Wing, Media Communications (1984)**

B.F.A., M.A. University of Arizona

**Susan Jo Wroten, Nursing (1985)**

B.S.N. Lake Superior State College; M.S.N. University of Arizona

**Catherine Yager, Computer Software Applications (2002)**

B.S. University of Arizona; M.S. University of Phoenix

**Deborah P. Yoklic, Mathematics (1983)**

B.A. Brandeis University; M.A. University of Arizona

**Margarita Youngo, History (1995)**

B.A., M.A. University of Arizona

**Dr. Charles Zhang, Mathematics (2000)**

B.S. Harbin Institute of Technology; M.S. California State University; Ph.D. Duke University

**Dr. Tamas D. Zsitvay, Political Science and Public Administration (1970)**

B.A., M.A. Arizona State University; Ph.D. University of Arizona

**Teresiana I. Zurita, Counselor (1999)**

B.A., M.S. University of Arizona; M.C. University of Phoenix

# Index

- Academic alert 33
- Academic Calendar 4
- Academic disqualification 33
- Academic Policies
  - Academic standards of progress 33
  - Grading policies 32
- Academic reinstatement 33
- Academic renewal 33
- Academic reporting 32
- Academic standards of progress 33
- Accelerated class options 46
- Accelerated weekend classes 46
- Accounting
  - Courses (ACC) 223
- Accreditation 5
- Acting. *See* Theater
- Administration of Justice Studies
  - Courses (AJS) 224
  - Programs 66
- Administrative and Office Support Careers. *See* Office and Administrative Professions
- Administrators, College District 356
- Admission to the College
  - Admissions and Enrollments Regulations 25
  - Border commuter students 23
  - Eligibility 22
  - International students 23
  - Special programs 22
  - Students 22
  - Underage students 22
- Adult Education. *See* Pima Community College Adult Education
- Advanced Placement (AP) 27
- Advising 26, 41
- Advising and Counseling Centers 41-42
- Affirmative Action/Equal Opportunity policy 356
- AGEC. *See* Arizona General Education Curriculum
- Agriculture. *See* Pre-Agriculture
- Air Force ROTC. *See* Reserve Officers Training Corps (ROTC)
- Alternative Learning Center 14
- Alternative-Style classes 46
- Alumni Association 8
- American Indian Studies
  - Courses. *See also* Anthropology; Apache Language; Archaeology; History; Tohono O'odham Culture; Tohono O'odham; Tribal Government; Yaqui
  - Courses (AIS) 225
  - Program 68
- Americans with Disabilities Act (ADA). *See also* Disabled Student Resources  
Contact Information, 356
- Anthropology. *See also* Archaeology
  - Courses (ANT) 225
  - Program 69
- Apache Language
  - Courses (APC) 227
- Applied Arts. *See* Arts, Applied
- Apprentice Related Instruction
  - Agency listing 351
  - Carpentry 352
  - Certificate Program 352
  - Custodial Development 352
  - Degree Program 352
  - Design, Building and Maintenance 353
  - Electrical Apprenticeship Training 353
  - Ironworking Apprenticeship 353
  - Plumbing and Pipefitting 353
  - Sheet Metal 354
- Arabic
  - Courses (ARB) 227
- Archaeology
  - Courses (ARC) 227
  - Program 70
- Architecture. *See* Pre-Architecture
- Arizona General Education Curriculum (AGEC)
  - Certificate for transfer 72
  - Information about 50
- Arizona State Environmental Technology Center (ASSET) 10
- Arizona State Environmental Technology Training Center (ASETT) 8
- Arizona State University
  - Courses/Arizona General Education Curriculum (AGEC) 50
- Army ROTC. *See* Reserve Officers Training Corps (ROTC)
- Art. *See also* Arts, Applied; Arts, Fine; Art for Personal Development; Digital Arts; Welding
  - Courses (ART) 229
- Art for Personal Development
  - Courses (APD) 229
- Arts, Applied
  - Program 73
- Arts, Fine
  - Program 75
- Assembly Production
  - Courses (ASP) 232
- Assessments
  - Exceptions to requirements 26
  - Preparation 26
  - Requirements 25
  - Special accommodations 26
- Associate of Applied Arts (AAA) Degree
  - General Education Requirements for 49
- Associate of Applied Science (AAS) Degree
  - General Education Requirements for 49
- Associate of Arts (AA) Degree
  - Categorical requirements for 50
  - Course lists for transfer 52
  - Information about 48
- Associate of Business Administration (ABUS) Degree
  - For transfer 93
  - General Education requirements for 48
- Associate of General Studies (AGS) Degree
  - General Education requirements for 49
- Associate of Science Degree for transfer 78
- Astronomy
  - Courses (AST) 232
  - Program 79
- Athletics. *See* Fitness and Recreation; Fitness and Sport Sciences; Intercollegiate Athletics; Recreational Sports; STORM Athletics program
- Automotive Technology
  - Courses (AUT) 233
  - Programs 79
- Aviation Technology
  - Courses (AVM) 235
  - Programs 81
- Aviation Technology Center 8, 12
- Aztec Press (student newspaper) 44
- Biochemistry
  - Program 84
- Biology
  - Courses (BIO) 237
  - Program 84
- Board of Directors, Pima Community College Foundation 40
- Board of Governors, Pima County Community College District 356
- Bookstores, campus 41



Building and Construction Technologies Courses (BCT) 238 Programs 85	Computer Information Systems Courses (CIS) 250 Programs 98	Disabled Student Resources Accommodations for assessment testing 26 Special programs for 43
Bus service 43	Computer Software Applications Courses (CSA) 253 Program 103	Distinguished Staff status 358
Business. <i>See also</i> International Business Studies Courses (BUS) 241 Programs 89	Cooperative Education Courses (CED) 255	District Office Administrators 357
Business and Industry Training (BIT) 8	Cooperative Education Classes 46	Domicile, evidence of 25
Cababi (student literary magazine) 44	Counseling 26, 41 Career counseling 41	Downtown Campus Administrators 357 Information about 8, 14-15
Campus and District locations 8	Course numbering system, explanation of 222	Drug Free Schools and Communities Act Information 45
Campus overviews Community Campus 10-11 Desert Vista Campus 12-13 Downtown Campus 14-15 East Campus 16-17 Locations 8 Northwest Campus 18 West Campus 20	Course prefixes, list of 222	Early Childhood Education and Child Development Associate. <i>See also</i> Child Development Associate; Education; Fitness and Sport Sciences Courses. <i>See also</i> Child Development Associate Courses (ECE) 265 Programs 119
Campus Police. <i>See</i> Department of Public Safety	Course prerequisites 31, 222	East Campus Administrators 358 Information about 8, 16-17
Campus-based financial aid programs 38	Creative Writing. <i>See also</i> Writing Program 104	Economics Courses (ECN) 266
Career Centers 41	Credit by examination 27	Education. <i>See also</i> Child Development Associate; Early Childhood Education and Child Development Associate Courses (EDU) 267 Program 130
Carpentry Courses (BCT) 239 Courses (CRP) 352 Courses (WOL) 354	Credit Hours, maximum per semester 31	Educational Technology Courses (ETT) 271 Programs 136
Center for the Arts 8, 20, 44	Crime Scene Management Courses (CSM) 255	Electrical Utilities Technology Courses (EUT) 271
Center for Training and Development (CTD) 8, 10, 12	Culinary Arts Courses (CUL) 256 Programs 104	Emergency Medical Technology (EMT) Courses (EMT) 272 Program 137
Certificates Explanation of 47 Non-Credit 62 Program codes for 58	Dance Courses (DNC) 257	Emeritus status 358
Chemistry Courses (CHM) 241 Program 94	DANTES. <i>See</i> Defense Activity for Non-Traditional Education Support	EMT. <i>See</i> Emergency Medical Technology
Child Development Associate Courses (CDA) 242	Declaring a program of study 26	Engineering Courses (ENG) 274 Program 138
Childcare 42	Defense Activity for Non-Traditional Education Support 30	English Program 139
Chinese Courses (CHI) 245	Degrees, associate Requirements 47	English as a Second Language Courses (ESL) 275
Classes, types of 46 ( <i>see the Schedule of Classes for details</i> )	Dental Assisting Education Courses (DAE) 258 Program 106	Enrolling in classes 31
Classification and standing, student 32	Dental Hygiene Courses (DHE) 258 Program 107	Environmental Technology Courses (ENV) 276
CLEP. <i>See</i> College-Level Examination Program	Dental Laboratory Technology Courses (DLT) 259 Programs 109	Equal Educational Opportunity policy 356
College-Level Examination Program 29	Dentistry. <i>See</i> Pre-Dentistry	Equine Science Courses (EQS) 277
Community Campus Administrators 357 Information about 8, 10-11	Department of Public Safety 41	Evidence of Domicile 25
Community Development Association Courses (CDE) 245	Department of Veterans Affairs (DVA) Academic standards 40 Benefits 39-40 Degree plans for veterans 40 Enrollment 39	Experiential Education Courses (EED) 277
Community Learning Center 8	Desert Vista Campus Administrators 357 Information about 8, 12	Express Degree 46
Computer Aided Design/Drafting Courses (CAD) 246 Programs 94	Desktop Publishing. <i>See</i> Digital Arts	Fabrication Courses (FAB) 277
Computer Art. <i>See</i> Digital Arts	Digital Arts Courses (DAR) 260 Programs 113	
	Direct Loan programs, federal 38	

- Faculty, list of 359
- FAFSA. *See* Free Application for Federal Student Aid
- Family Educational Rights and Privacy Act (FERPA) 32
- Fashion Design and Clothing
  - Courses (FDC) 278
  - Program. *See* Arts, Applied
- Federal financial aid programs 38
- Federal Plus Loan Program 38
- Federal Supplemental Educational Opportunity Grants (FSEOG) 38
- Federal Work-Study Program 38
- Fees 35
- Field Experience Classes 46
- Finance
  - Courses (FIN) 279
- Financial Aid. *See also* Department of Veterans Affairs; Scholarships
  - Campus-based programs 38
  - Federal aid programs 38
  - Short-term loans 39
  - State aid programs 38
  - Work-Study 39
- Financial holds 35
- Fine Arts. *See* Arts, Fine
- Fire Science
  - Courses (FSC) 279
  - Programs 140
- Fitness and Recreation
  - Courses (FAR) 281
- Fitness and Sport Sciences
  - Courses (FSS) 282
  - Professional Activities Courses (FSS) 286
  - Programs 142
- Food Science and Nutrition
  - Courses (FSN) 286
- Football, college. *See* STORM Athletics program
- Foreign students. *See* International students
- Forensics and Crime Scene Technology Program 146
- Foundation, Pima Community College
  - Board of Governors 38
  - Foundation Awards 39
  - Information about 40
- Foundations for Personal Change
  - Courses (FPC) 287
- Free Application for Federal Student Aid (FAFSA) 38
- French
  - Courses (FRE) 287
- FSEOG. *See* Federal Supplemental Educational Opportunity Grants
- GED test. *See* General Education Development test
- General Education
  - Degree requirements 48
  - For Associate of General Studies 49
  - For direct employment 49
  - For occupational programs 49
  - For transfer programs 50
  - Information about 47-50
  - Prerequisites 48
- General Education Development (GED) test 26
- General Studies
  - Program 147
  - Program code 59
- General Technologies Mathematics
  - Courses (GTM) 288
- Geography
  - Courses (GEO) 288
- Geology
  - Courses (GLG) 289
  - Program 147
- German
  - Courses (GER) 289
- Golf, college. *See* STORM Athletics program
- Grades
  - Appeal process 33
  - Calculation of GPA 32
  - Grade Reports 33
  - Policies 32
- Graduation
  - Catalog under which a student graduates 48
  - Requirements 47
  - Time limit for coursework 48
  - With honors 48
- Grants
  - Federal Supplemental Educational Opportunity Grant (FSEOG) 38
  - Leveraging Educational Assistance Partnership (LEAP) Grant 39
  - Pell Grants, federal 38
- Graphic Design. *See* Digital Arts
- Greek
  - Courses (GRK) 289
- Green Valley Education Center. *See* Community Learning Center
- Green Valley, Arizona 8
- Harassment policy statement 356
- Health Care. *See also* Dental Assisting Education; Dental Hygiene; Dental Laboratory Technology; Emergency Medical Technology; Health Continuing Education; Health Education; Histotechnology; Magnetic Resonance Imaging; Nursing; Nursing Assistant; Nursing Continuing Education
  - Courses (HCA) 290
- Health Continuing Education
  - Courses (HCE) 290
- Health Education
  - Courses (HED) 290
- Hebrew
  - Courses (HEB) 290
- High school students, advanced placement of 27
- Historic profile of college 6
- History
  - Courses (HIS) 290
  - Program 148
- Histotechnology
  - Courses (HTP) 292
  - Programs 148
- Honors. *See also* Phi Theta Kappa
  - Admissions requirements 46
  - Courses (HON) 292
  - Graduating with 48
  - Program 46
- Hospitality/Tourism
  - Courses. *See also* Travel Industry Operations Courses (HRM) 292
  - Programs 150
- Hotel and Restaurant Management. *See* Hospitality/Tourism
- Housing, student 44
- Human Resources
  - Courses (HRS) 294
  - Program 153
- Humanities
  - Courses (HUM) 295
- Independent Learning Classes 46
- Institutional Effectiveness Policy 6
- Institutional Student Aid. *See* Work Study
- Interactive TV Classes 46
- Intercollegiate Athletics 44
- Interior Design
  - Courses (DES) 296
  - Programs 154
- International Baccalaureate (IB) Programs 27
- International Business Studies
  - Courses (IBS) 297
  - Program 156
- International Student Services 43
- Internet
  - Classes via 46
  - College home page 1
- Interpreter Training. *See also* Sign Language
  - Courses (ITP) 297
  - Program 157
- Italian
  - Courses (ITA) 298
- Japanese
  - Courses (JPN) 298
- Job Information 43
- Journalism
  - Courses (JRN) 299
- Landscape Technician
  - Courses (LTP) 300
- Languages
  - Courses. *See* Apache Language; Arabic; Chinese; French; German; Greek; Hebrew; Italian; Japanese; Latin; Portuguese; Russian; Sign Language; Spanish; Tohono O'odham; Yaqui
  - For transfer 159
- Latin
  - Courses (LAT) 301

Law. <i>See</i> Pre-Law	Nursing Courses (NRS) 313 Program 170	Pre-Veterinary Program 189
LEAP. <i>See</i> Leveraging Educational Assistance Partnership Grant	Nursing Assistant Courses (NRA) 314	Process Technology Courses (PRO) 320
Legal Assistant. <i>See</i> Paralegal	Nursing Continuing Education Courses (NCE) 314	Production Inventory Management Courses (PIM) 320
Leveraging Educational Assistance Partnership (LEAP) Grant 39	Occupational Programs General Education requirements 49 Program codes 59 Programs, list of 59	Professional Flight Technology Courses (PFT) 320
Liberal Arts Program 77	Office and Administrative Professions Courses (OAP) 314 Programs 173	Psychology Program 190
Library Services 43	Open Entry/Open Exit Classes 46	Public Administration Courses (PAD) 320 Program 190
Library Skills Courses (LIB) 301	Orientation, new student 26, 43	Public Safety and Emergency Services Institute 8, 10 About the Institute 190 Courses. <i>See</i> Community Development Association Programs. <i>See</i> Administration of Justice; Emergency Medical Technology; Fire Science; Corrections (contractual); Law Enforcement; Juvenile Corrections (contractu- al); Public Safety Communications
Literary publications, student 44	Paralegal (Legal Assistant) Courses (LAS) 316 Programs 180	Public Safety Communications Courses (PSC) 321 Programs 191
Literature Courses (LIT) 301	Parking and Bus service 43	Publications, student 44
Loans. <i>See</i> Financial aid	PCCAE. <i>See</i> Pima Community College Adult Education	Quality Control Technology Courses (QCT) 321
Machine Tool Technology Courses (MAC) 302 Programs 160	Pell Grants, federal 38	Radiologic Technology Courses (RAD) 321 Programs 192
Magnetic Resonance Imaging Courses (MRI) 303	Performing Arts 44	Reading Courses (REA) 322
Maintenance Technology Courses (MNT) 303	Perkins Loans, federal 39	Real Estate Courses (RLS) 322
Major. <i>See</i> Declaring a program of study	Pharmacy. <i>See</i> Pre-Pharmacy	Real Estate/Brokerage Program 194
Management Courses (MGT) 305	Pharmacy Technology Courses (PHT) 317 Programs 184	Record and Information Management Courses (RIM) 323
Marketing Courses (MKT) 306	Phi Theta Kappa 44	Recreational sports 44
Mathematics Courses. <i>See also</i> Building and Construction Technologies; Business; Early Childhood Education and Child Development Associate; Education; Foundations for Personal Change; General Technologies Mathematics; Technology Courses (MAT) 307 Program 168	Philosophy Courses (PHI) 317	Refund policies 36-37
MAX 2000, telephone registraton 31	Physics Courses (PHY) 318 Program 186	Regular Weekend Classes 46
Medical Insurance. <i>See</i> Health, student services	Pima College Adult Education Division 8	Religion Courses (REL) 323
Medicine. <i>See</i> Pre-Medicine	Pima Community College Adult Education 10	Reserve Officers Training Corps (ROTC) Programs 194 ROTC — Air Force Courses (MLA) 324 ROTC — Army Courses (MLS) 325 ROTC — Navy Courses (NSP) 324
Microbiology. <i>See</i> Biology	Policies, College 356-357	Residency Requirements for students 23
Military Servicemembers Opportunity College 27	Political Science Courses (POS) 319 Program 186	Respiratory Therapist Program 195
Mission Statement 5	Portuguese Courses (POR) 319	Respiratory Therapy Courses (RTH) 325
Molecular/Cellular Biology. <i>See</i> Biology	Postal Service Management Courses (PSM) 320	Restaurant Culinary and Foodservice Management. <i>See also</i> Culinary Arts Courses (RCF) 326
Music Courses (MUS) 309 Program 169	Pre-Agriculture Program 187	
Navy ROTC. <i>See</i> Reserve Officers Training Corps (ROTC)	Pre-Architecture Program 188	
Northeast Community Learning Center 8	Pre-Dentistry Program 189	
Northern Arizona University Courses/Arizona General Education Curriculum (AGEC) 50 Hotel Restaurant Management Program 18	Pre-Law Program 189	
Northwest Campus Administrators 358 Information about 8, 18	Pre-Medicine Program 189	
	Pre-Pharmacy Program 189	

ROTC. *See* Reserve Officers Training Corps  
 Russian  
     Courses (RUS) 326  
 Safety Education  
     Courses (SED) 326  
 Schedule of Classes 26, 31  
 Scholarships/awards 39  
 Self-Paced Classes 46  
 Sexual harassment policy 356  
 Sign Language  
     Courses (SLG) 326  
 Small Business Development Center 8, 10  
 Social Security Number, required use of 25  
 Social Services  
     Courses (SSE) 326  
     Programs 197  
 Sociology  
     Courses (SOC) 328  
     Program 204  
 Southeast Community Learning Center 8  
 Spanish  
     Courses (SPA) 329  
     Program 206  
 Special examination for credit 29  
 Speech Communication  
     Courses (SPE) 331  
     Program 206  
 Sports. *See* Intercollegiate Athletics; Intramural Sports; Fitness and Recreation; Fitness and Sport Sciences; Recreational Sports  
 Stafford Loan Program, federal 38  
 State financial aid programs 38  
 STORM Athletics program, 16  
 Student  
     Classification and standing 33  
     Clubs and Organizations 44  
     Housing 38, 44  
     Insurance 43  
     Leadership and government 44  
     Loans. *See* Financial aid  
     Newspaper. *See* Aztec Press  
     Publications 44  
     Recognition activities 45  
     Records 32  
     Residency requirements 23  
     Rights and responsibilities 32  
     Standards of Conduct 45  
 Student Handbook 38  
 Student Identification Cards 44  
 Student Identification Number 25  
 Student Life 44  
 Student Services 41  
 Student Success  
     Courses (STU) 331  
 Summer Session classes 46  
 Supplemental Educational Opportunity Grants, federal 38

Technology  
     Courses (TEC) 333  
     Programs 207  
 Telecourses 46  
 Telephone registration system (MAX 2000) 31  
 Test of English as a Second Language (TOEFL) 26  
 Theater  
     Courses (THE) 336  
     Program 214  
 TOEFL. *See* Test of English as a Second Language  
 Tohono O'odham  
     Courses (THO) 337  
 Tohono O'odham Culture  
     Courses (TOC) 337  
 Topics Courses 222  
     Information about 338  
 Transcripts 44  
 Transfer of Credits  
     For members of the military 27  
     Into PCC 26  
     Of General Education Courses/Arizona General Education Curriculum (AGEC) 50  
 Transfer Programs 50  
     General Education requirements 50  
 Translation Studies  
     Courses (TRS) 338  
     Program 215  
 Travel Industry. *See* Hospitality/Tourism  
 Travel Industry Operations  
     Courses (TVL) 338  
 Tribal Government  
     Courses (TRB) 339  
 Truck Driver Professional Training Program 10  
 Truck Driver Training  
     Courses (TDT) 339  
     Programs 216  
 Tuition and Fees 34  
     Fees 34  
     Payment methods 35  
     Refund policy for credit classes 36  
     Refund policy for noncredit classes 37  
     Tuition 34  
     Tuition holds (encumbrances) 35  
 Tutoring 44  
 University of Arizona  
     Courses/Arizona General Education Curriculum (AGEC) 50  
 Veterans assistance. *See* Department of Veterans Affairs  
 Veterinary Medicine. *See* Pre-Veterinary  
 Veterinary Technology  
     Courses (VET) 340  
     Program 218  
 Vision High School 12  
 Web Design. *See* Digital Arts  
 Web site, college 1

Web/Web-Enhanced Classes 46  
 Welding  
     Courses (WLD) 341  
     Program 220  
 West Campus  
     Administrators 358  
     Information about 8, 20  
 Wheels of Learning  
     Carpentry 354  
     HVAC 354  
     Masonry 354  
     Painting 354  
     Plumbing 354  
     Sheet Metal 354  
 Winter Intersession classes 4  
 Women's Studies  
     Courses (WST) 342  
 Work Study 38-39  
 Workforce and Business Development 10  
 Writing  
     Courses (WRT) 342  
 Yaqui  
     Courses (YAQ) 344

## Credits

### Production

*Art Direction*  
 David Tang

*Layout*  
 Kelly Sampson

*Cover Design, Illustration, Layout*  
 Shannon McBride-Olson

*Photography*  
 David Tang

*Publication Coordination, Writing/Editing*  
 Lori Brown

*Publication Support*  
 Grace English

### Curriculum

*Curriculum Direction*  
 David Padgett

*Curriculum Coordination/Content Editor*  
 Marci Kim

*Curriculum Production*  
 Susan Enix  
 Reinhard Pawlicki

### Printing

Phillips Brothers Printers



