PimaCountyCommunityCollegeDistrict

PimaCommunityCollegeCatalog 2003/2004
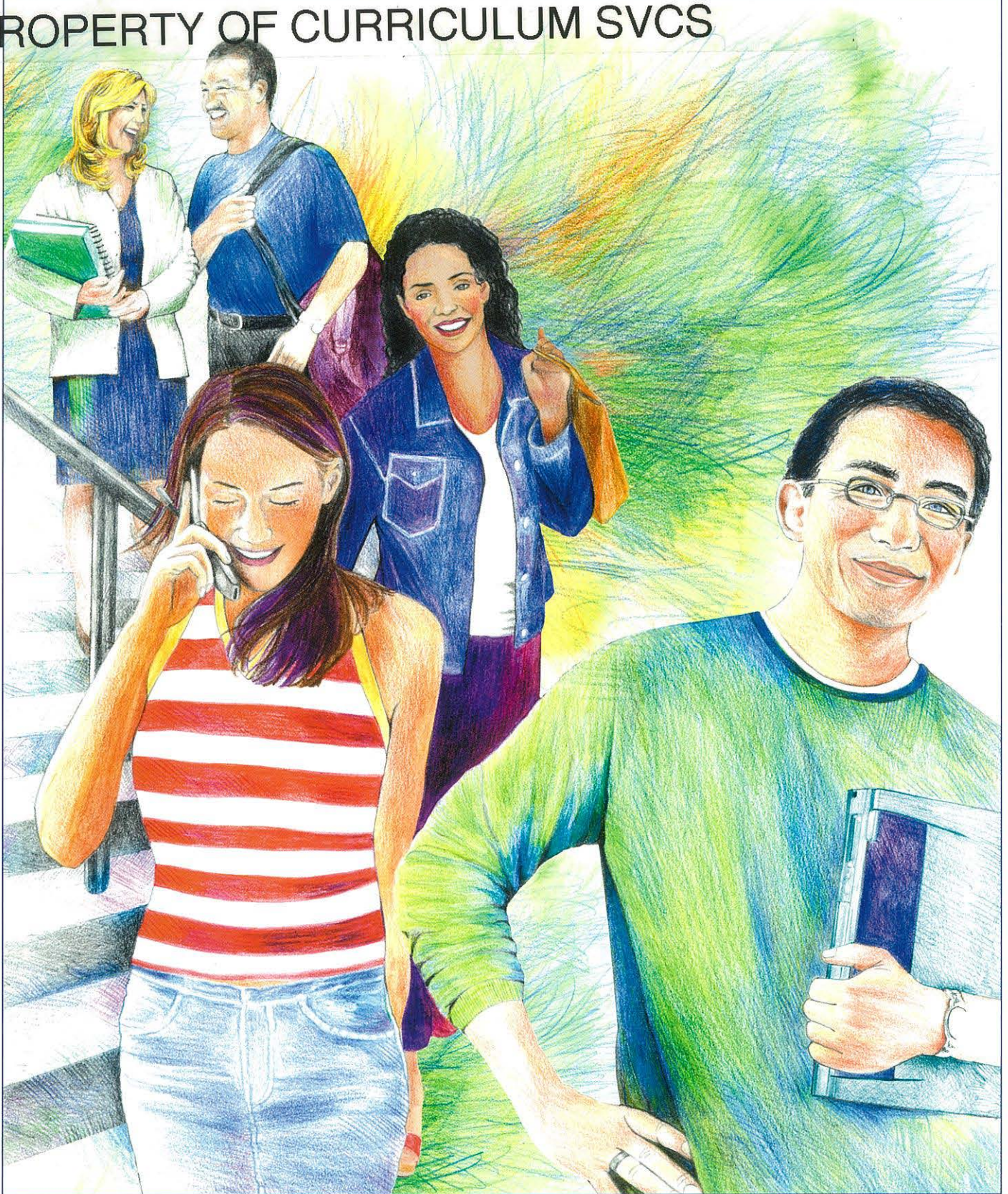
PimaCommunityCollegeCatalog 2003/2004

Pima County Community College District
4905 East Broadway Blvd.
Tucson, AZ 85709-1010
(520) 206-4500

Board of Governors

District 1   Dr. Brenda B. Even

District 2   Mr. Richard G. Fimbres

District 3   Ms. Sherryn S. Marshall

District 4   Mr. Scott A. Stewart, Chair

District 5   Ms. Marty Cortez

Dr. Roy Flores, Chancellor

Message from the Chancellor

Welcome 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, 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, three community learning centers, and at approximately 145 off-campus locations.

At campus one-stop centers, you can register, ask questions, 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

Dr. Roy Flores
Chancellor

Table of Contents

Academic Calendar

Fall Semester 2003

All College In-Service Day (College Closed)	Aug. 18
Faculty advising begins	Aug. 19
* **Fall classes begin** (traditional semester)	Aug. 25
‡ First 8-week session begins	Aug. 25
Add/drop week (traditional-length courses)	Aug. 25 – Aug. 30
Labor Day holiday (College closed)	Sept. 1
Drop/Refund deadline for 16-week classes	Sept. 8
Census date, 45th day	Oct. 8
Graduation Application Deadline	Oct. 17
Traditional semester midpoint	Oct. 13 – Oct. 19
First 8-week session ends	Oct. 19
‡ Second 8-week session begins	Oct. 20
Veterans Day holiday (College closed)	Nov. 11
Withdrawal deadline (traditional-length courses)	Nov. 12
Thanksgiving holiday (College closed)	Nov. 27 – Nov. 30
Final exam week	Dec. 10 – Dec. 16
Fall semester ends (traditional semester)	Dec. 16
Final grades due	Dec. 16
Second 8-week session ends	Dec. 16
Second 8-week final grades due	Dec. 16
Winter recess (students/faculty)	Dec. 17 – Jan. 6
Holiday break (College closed)	Dec. 25 – Jan. 1

Winter Intersession 2003-04

‡ **Classes begin**	Dec. 18
Holiday break (College closed)	Dec. 24–25, Dec. 31–Jan. 1
Classes resume	Jan. 2
Classes end	Jan. 10
Final grades due	Jan. 10

Spring Semester 2004

College opens	Jan. 2
Faculty advising begins	Jan. 7
All Faculty Day	Jan. 9 or TBA
* **Spring classes begin** (traditional semester)	Jan. 14
‡ First 8-week session begins	Jan. 14
Add/drop week	Jan. 14 – 21
Martin Luther King Jr. holiday (College closed)	Jan. 19
Refund deadline	Jan. 28
** Rodeo holiday (College closed)	Feb. 26 – 27
Graduation Application Deadline	Oct. 27
Census date, 45th day	Feb. 27
Traditional semester midpoint	Mar. 8 – 14
First 8-week session ends	Mar. 9
Spring break (no classes)	Mar. 15 – 21
‡ Second 8-week session begins	Mar. 22
Withdrawal deadline (traditional-length courses)	Apr. 7
Final exam week	May 10 – May 16
Graduation	TBA
Final grades due	May 14
Spring semester ends (traditional semester)	May 16
Second 8-week session ends	May 16
Second 8-week final grades due	May 17
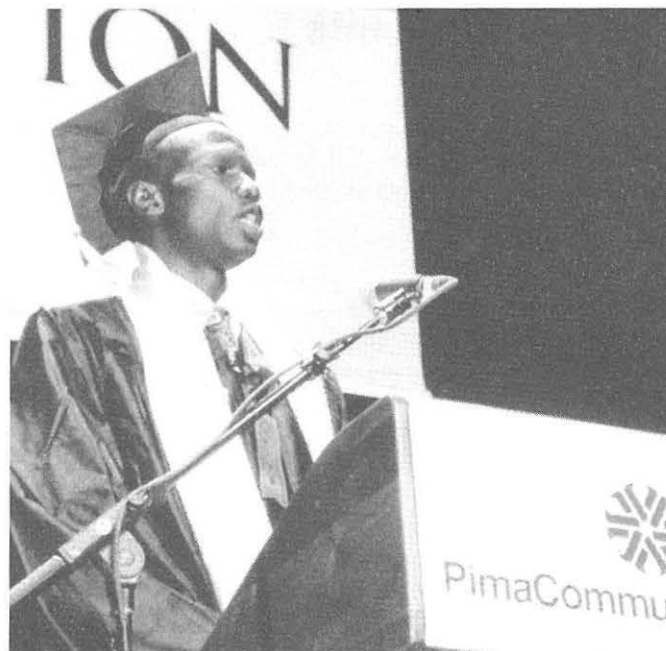
Summer Sessions 2004

Session A

Classes begin	May 24
Add/drop	May 24 – May 25
Memorial Day holiday (College closed)	May 31
Classes end (5 week session)	Jun. 28
Independence Day holiday (College closed)	Jul. 4 – 5

Session B

Classes begin	Jul. 6
Add/drop	Jul. 6 – 7
Classes end (5 week session)	Aug. 9

Session C

Classes begin	May 24
Add/drop	May 24 – 25
Memorial Day holiday (College closed)	May 31
Independence Day holiday (College closed)	Jul. 4 – 5
Classes end	
• 8-week session	Jul. 20
• 10-week session	Aug. 2

* 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 2004 Rodeo Holiday.

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) 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, 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.
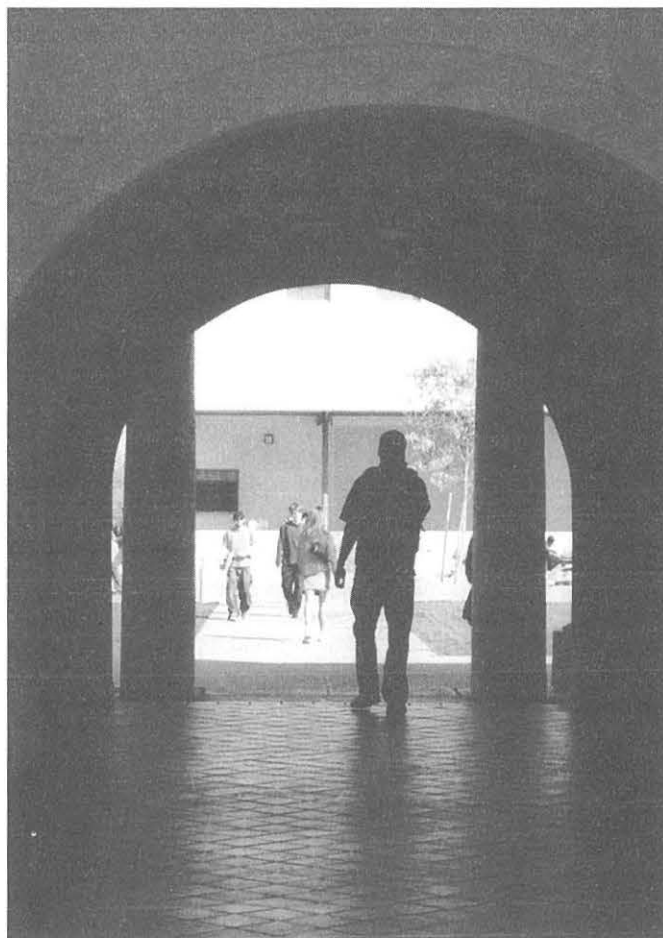
Our Mission

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.
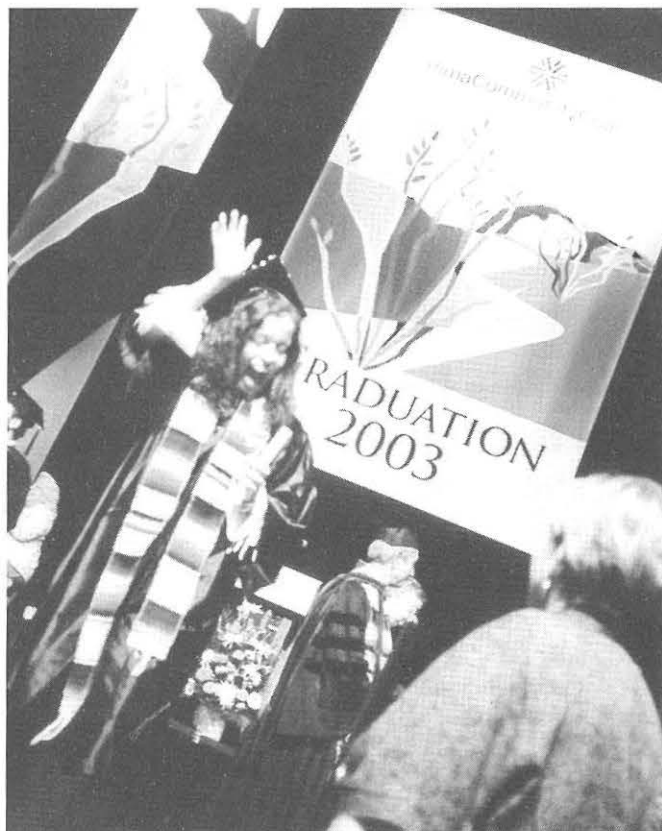
Success Indicators

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 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. Some of these students use the many training and student services of the Center for Training and Development or attend the 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 to be replaced in fall 2003 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 years, Pima Community College has ranked among the five largest multi-campus community colleges in the nation, and currently enrolls more than 84,000 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 Central 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
Open July 2003:
7600 N. 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 Central Office)
4905C East Broadway Blvd.
Tucson, AZ 85709-1290
(520) 206-4528

Arizona State Environmental Technology Training Center (ASETT) (*See* East Campus)
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

Business and Industry Training (*See* Community Campus)
401 North Bonita Ave.
Tucson, AZ 85709-5500
(520) 206-6569

Educational Centers and Offices (*continued*)
Center for the Arts (*See* West Campus)
2202 West Anklam Rd.
Tucson, AZ 85709-0295
(520) 206-6986

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

Nogales/Santa Cruz Education Center (Not pictured on the map)
125 East Madison St.
Nogales, AZ 85621
(520) 206-4669 and (520) 287-5583

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

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

Pima Community College Foundation (*See* District Central 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

Serving students since 1975, the Community Campus conducts credit and noncredit classes at its campus location (401 N. Bonita Ave.) and in more than 145 facilities throughout southern Arizona, including the Northeast Community Learning Center (7816 E. Wrightstown Rd.), Southeast Community Learning Center (Vail), Davis-Monthan Air Force Base, and at various public facilities in greater Tucson, Green Valley, Nogales, Sells, Globe, Payson, and San Carlos.

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 every year. In the Fall 2002 semester, the Community Campus along with the Northeast and Southeast Learning Centers served more than 8,300 students.

The Community Campus also develops and administers educational services in support of College district-wide educational programs and initiatives, and it delivers 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). AAS/BIT degree programs include a degree in Microsoft Certified Systems Engineer (MCSE) studies and a degree in Certified Novell Engineer (CNE) studies.

Campus services include development and delivery of programs in the following areas: Business and Industry Training (BIT) division provides small business and corporate education and training services; professional development courses, management and leadership training; manufacturing, quality control, and performance improvement solutions. Technology performance improvement and training is provided through the Information Technology Institute

and the Small Business Development Center focuses on providing business development, expansion, and retention assistance. Workforce training services are provided by the Center for Training and Development (CTD). Adult basic education classes are coordinated by the Pima College Adult Education Division and are held at various sites throughout Pima County. Community education programs and services include senior and general interest classes, summer classes for K-12 students, workshops, seminars, and study tours throughout the Southwest, Mexico, and abroad.

The Community Campus administrative headquarters houses a registration and cashier center, an advising and counseling center, a learning resource and educational service center, a conference and training center, and administrative offices for the campus and its various divisions. The telecommunications wing houses the College district-wide interactive classroom system hub, broadcast-quality production facilities, and the telecourse distribution center. Also in this wing, the College has provided space to Northern Arizona University (NAU) for its interactive classroom and distribution control center for NAU distance learning operations in southern Arizona.

St. Mary's Road

I-10 access road →   ← I-10 access road

6th Street

N

Commerce Park Loop

C

NAU

Bonita Avenue

B

A

Welcome Center

Parking   Parking

Parking   Parking

10

Santa Cruz River

Commerce Park Loop

W. Congress Street

I-10/Congress St. exit/entrance
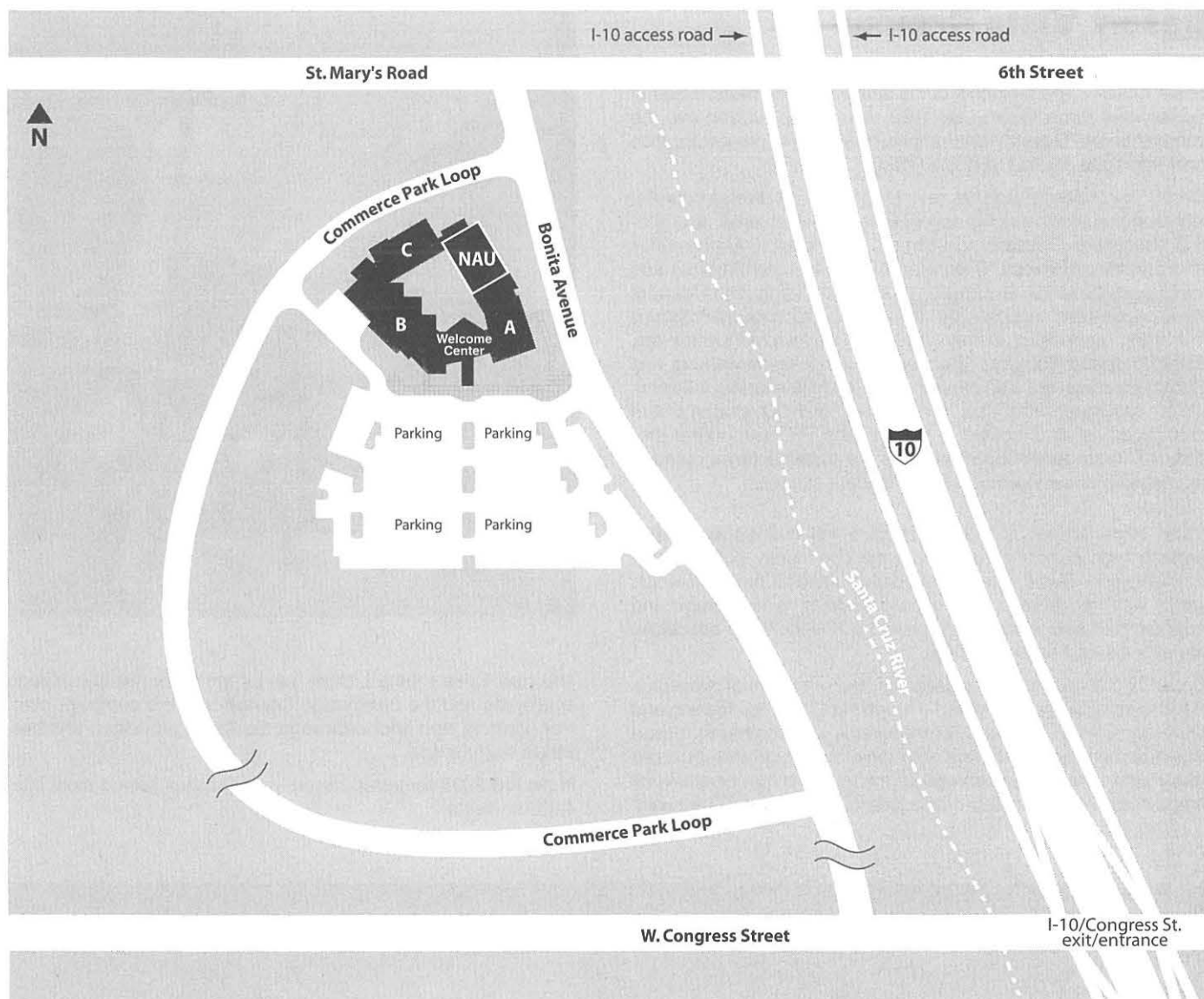
Area A:
Business and Industry Training
Center for Training and Development
Computer Commons
Conference and Training Center
Continuing Education for Professionals
Hi Tech Training Rooms
International Training
NAU Administrative Offices
Small Business Development Center

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 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

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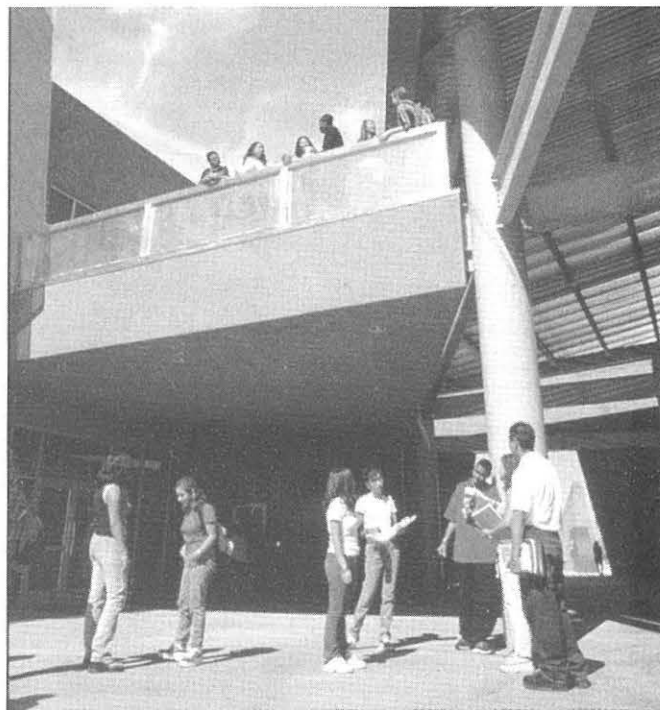
The new Desert Vista Library serves students, faculty, college employees and the community. Together with the computer commons, testing, and adult education, the library provides a versatile, varied study space.

In the Fall 2002 semester, Desert Vista Campus served more than 4,000 students.

Irvington Road

Drexel Road

N
1 mile

Parking

Parking

Calle Santa Cruz

Parking

CCC

Pueblo

Visitor Parking

Plaza

Parking

Parking

1 mile

19

Valencia Road
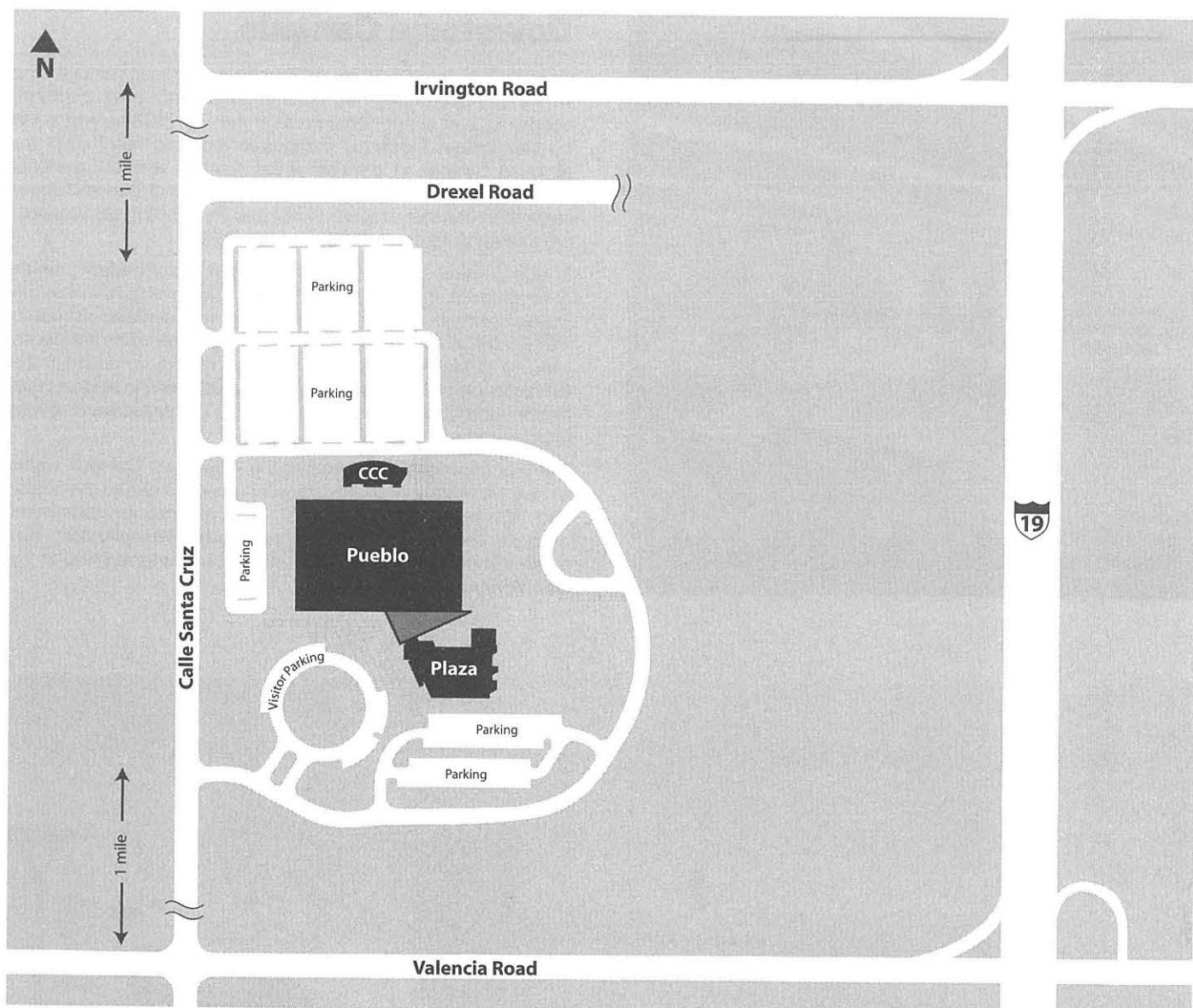
Pueblo Building	Adjunct Faculty Offices
	Administrative Offices
	Audio/Visual Services
	Bookstore
	Business Office
	Cafeteria
	Campus Police
	Center for Training and Development
	Classrooms
	Clerical/Copy Center
	Culinary Kitchens
	Faculty Offices
	Laboratories
	Student Activities
CCC Building	Child 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.

N

Drachman Street

Tenth Avenue

Parking

Mabel Street

Parking

Parking

Parking

Parking

Parking

Parking

Mabel Street

ST   ST

Parking

Stone Avenue

Parking

Helen Street

Parking

RV

CC

CD

Link

Parking

Eleventh Avenue

Queen Avenue

LB

MP

COS

Parking

Service

AH

Helen Street

Speedway Boulevard
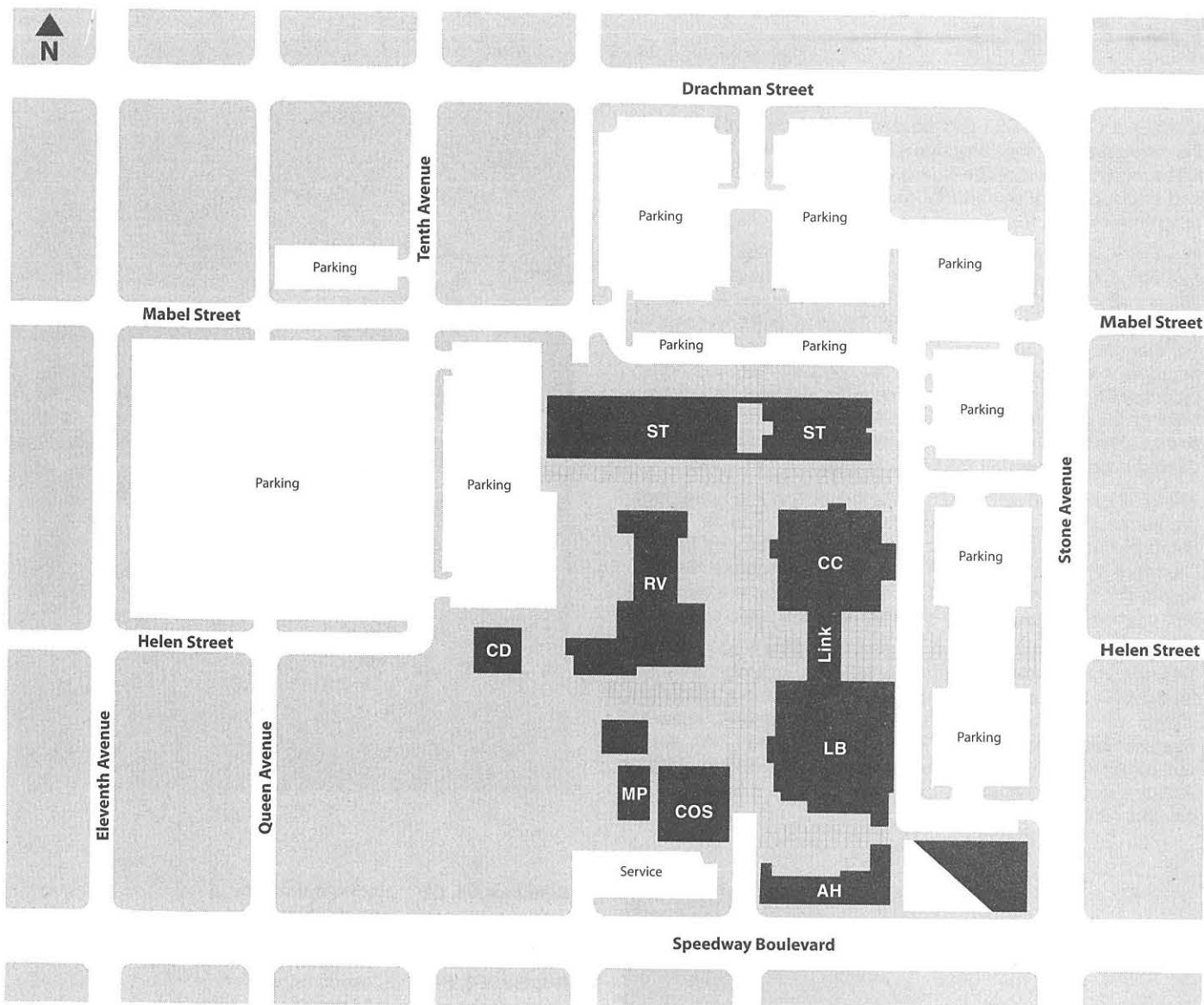
Classrooms	AH	
	LB	
	RV	
	ST	
Offices	COS	Campus Business Services
	CC/ LB/ ST	Faculty Offices
	RV	Administrative Offices
	CC	Student Government

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, Administration of Justice, and Environmental Technology. This past year, the campus continued to grow in occupational offerings with the addition of a Veterinary Technology program. Community development services and specialized safety training are products offered by the Public Safety Institute and the Arizona State Environmental Technology Training Center (ASETT Center)—both housed at the East Campus.

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 2001, the East Campus enrolled nearly 6,000 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 newly developed *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 & FacultyResource Center
	Classrooms
	Mail Center
Building E-6	Business Office
	Campus Police
	Classrooms
	Laboratories
	Physical Plant
	Receiving

N

Poinciana Drive

Clements Center

Parking

Parking

Pantano Road

Parking | Parking

O1

Library

Parking

E1
E2
E3

E5

Student Center

Parking

Parking

Parking

E4

O2

E6

E7

Fred Enke Golf Course Road

Parking

Parking

Parking

Parking

Parking

M1 M5 M6 M4

Irvington Road
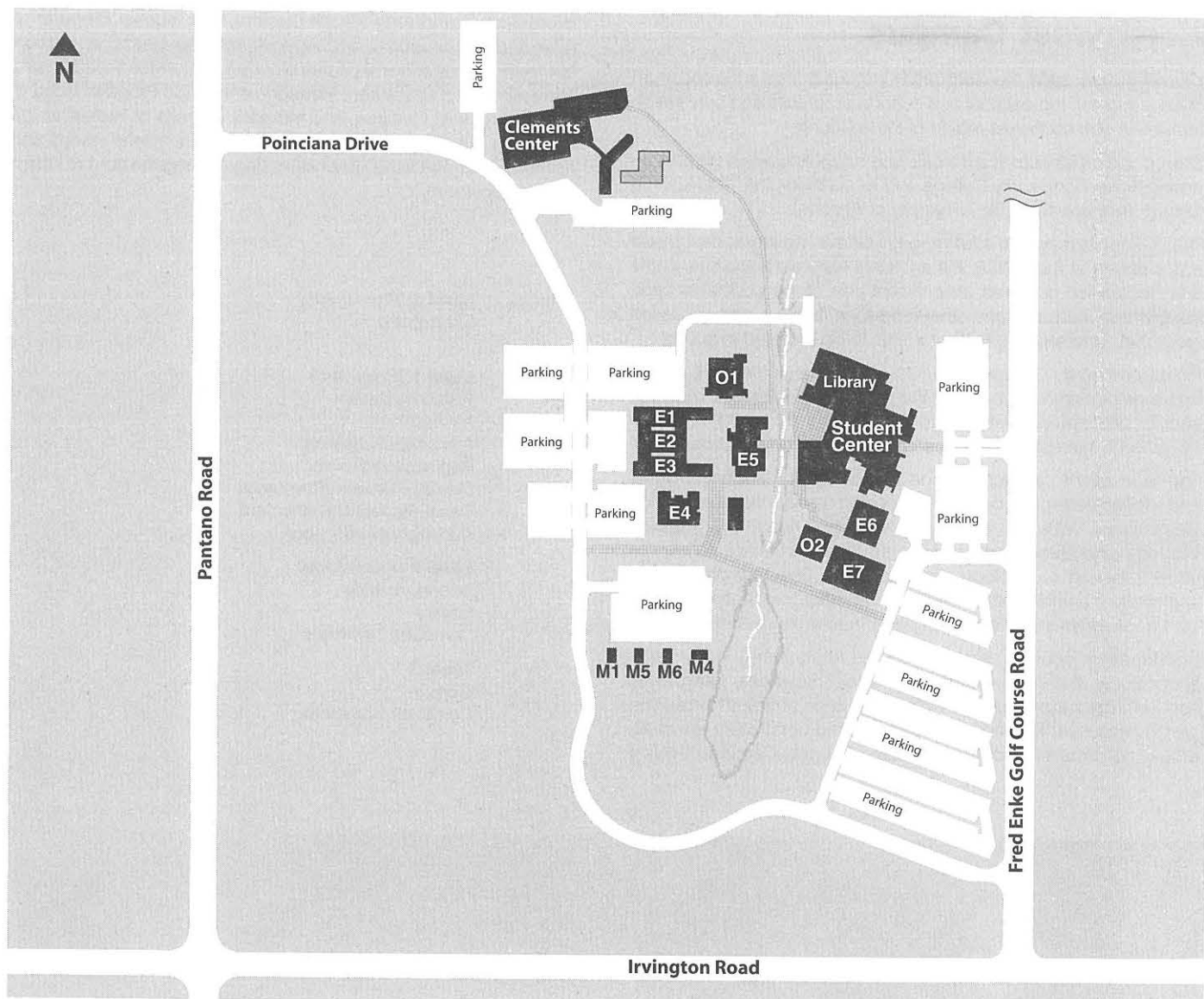
Building M-4 Arizona Astronomy Education Center

Clements Center Classrooms
Recreation Facilities

Library/Student Center (LSC)
Academic Support
Assessment
  Math Center
  Reading
  Testing
  Tutoring
  Writing Center
Bookstore
Cafeteria
Cashier
Community Room
Computer Commons
Computer Support Services
Library

Library/Student Center (LSC) *(continued)*
Student Services
  Admissions/Registration
  Advising
  Career Center
  Counseling
  Dean of Student Development
  Disabled Student Resources
  Financial Aid/Veterans
  Student Life/Student Government
  Welcome Center

Northwest Campus

Opening July 2003, 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. Opening day facilities also include classrooms, labs for Biology, Chemistry, Astronomy/Physics, Geology and Geography, a Mediated Science Center, as well as 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 Science and Mathematics. Degrees and certificates are available in Information Technology, Office Support Careers, Medical Information Technology, Health Careers, and Teacher Preparation (Elementary Education), and Agriculture/Agribusiness. In addition, new professional/technical degree programs are under development. The entire Hotel Restaurant Management (HRM) Program is found at the Northwest Campus, and includes courses of interest to the hospitality industry, student internships in local hotels, resorts and restaurants,as well as the Bachelor's degree program from Northern Arizona University.

Area A	**Level 2** *(Promenade)*
	Classrooms
Area B	**Level 1** *(Boulevard)*
	Welcome Center
	Assessment
	Advising/Counseling
	Registration/Cashier
	Disabled Student Resources
	Dean, Student Development
	Administratve Services
	Level 2 *(Promenade)*
	Tutoring/Testing
	Library
	Computer Commons
	Level 3
	Library
	Computer Commons

N

Magee Road

Parking

Parking

Parking

YMCA
Northwest Community
& Aquatic Center

Pools

Pima County
Parks & Recreation
Athletic Fields

Shannon Road

Parking

Parking

Campus Park Way

Parking

A

L

B

C

D

E

Pima Community College
Northwest Campus

Mona Lisa Road

Parking
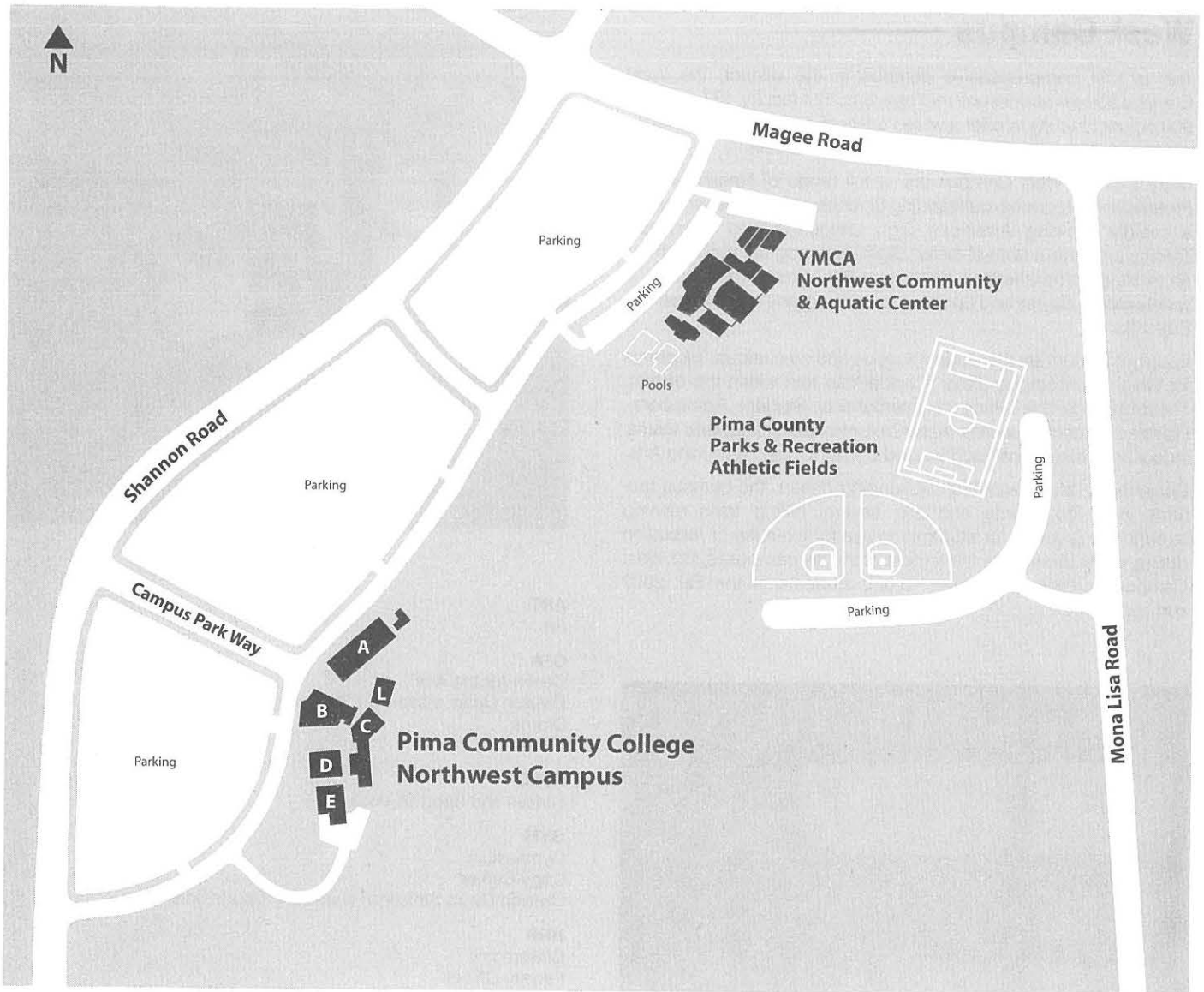
Area C **Level 2** *(Promenade)*
Cafeteria
Classrooms

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 2002 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
Division Dean, Athletics/Fitness and Sports Sciences

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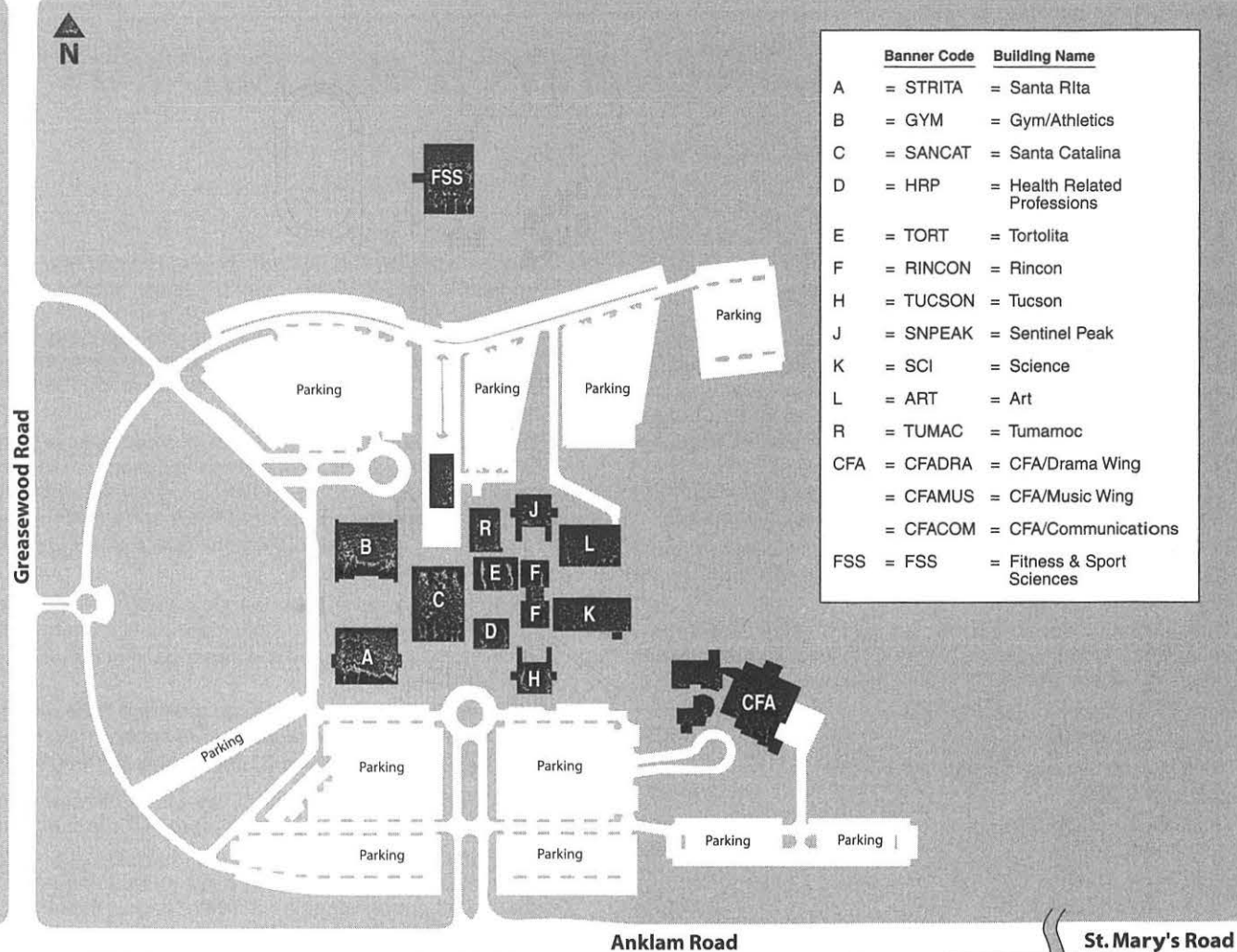
	Banner Code	Building Name
A	= STRITA	= Santa Rita
B	= GYM	= Gym/Athletics
C	= SANCAT	= Santa Catalina
D	= HRP	= Health Related Professions
E	= TORT	= Tortolita
F	= RINCON	= Rincon
H	= TUCSON	= Tucson
J	= SNPEAK	= Sentinel Peak
K	= SCI	= Science
L	= ART	= Art
R	= TUMAC	= Tumamoc
CFA	= CFADRA	= CFA/Drama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

Santa Rita
Administration
Administrative Services
Aztec Middle College
Business
Cafeteria
Computer Sciences
Faculty Offices
Health and Wellness Center
Student Government and Clubs
Student Life and Educational Outreach
Student Lounge
TV Lounge

Tortolita
Classrooms
Division Dean, Mathematics, Science and Technology
Faculty Offices

Tucson
Classrooms
Division Dean, Business, Computer and Social Sciences
Division Dean, Health Related Professions
Engineering Labs

Science
Allied Health Labs
Biology Labs
Chemistry Labs
Dental Clinic
Dental Studies
Geosciences Labs

Sentinel Peak
Childcare Center
Classrooms
Division Dean, Communications and Humanities
Photography

Tumamoc
Archaeology
Campus Police

Mailroom
Receiving
Technology Services

Admissions, Registration and Records

Admission to the College

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

Admission to the College is granted to persons in the following categories established by the Arizona Community College Commission (R7-1-301).

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

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

Eligibility for Admission

Pima Community College will admit students if they fall within one of the following categories provided that the established College criteria, guidelines and procedures have been met:

1. a graduate of an accredited high school
2. a recipient of a G.E.D. certificate of high school equivalency
3. a transfer student from an accredited college
4. non-high school graduate who is 18 years of age or older who can benefit from instruction
5. a non-high school graduate between the ages of 16 and 18 who has officially withdrawn from high school who can benefit from instruction;
6. a student currently attending high school, age 16 and over, seeking dual enrollment at PCC, accompanied by written approval from the student's principal and parents or legal guardian
7. a student currently enrolled in high school, seeking concurrent enrollment with PCC, who achieves the specified COMPASS or ASSET scores as per College Concurrent Enrollment Guidelines or who presents a composite score of 930 or more on the verbal and math portions of the SAT (Scholastic Aptitude Test) or a composite score of 22 or more on the ACT (American College Test) and written approval from the student's parents or legal guardian
8. a student under the age of 16 without a diploma or GED, seeking dual enrollment at PCC, who has achieved a specified score(s) on the COMPASS or ASSET as per approved College policy or on the SAT, ACT may enroll in up to eight (8) credit hours in accordance with R7-1-301 and with parental/legal guardian approval and the successful completion of the special underage admissions process at the campus the student wishes to attend
9. an international student enrolled for 12 credit hours or more, or a border commuter student enrolled in 6 credit hours or more who has completed an academic program equivalent to an American secondary school and has a score of 450 or better on the Test of English as a Foreign Language (TOEFL) or whose native language is English
10. International students must demonstrate English proficiency using a college approved instrument if they plan to enroll in courses other than English as a Second Language or courses offered bilingually
11. a returning student, **who has not attended PCC within the last three years**, will be required to **re-apply** for admission at any campus or center location prior to new enrollment

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

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

Admission of Underage Students

Guidelines:

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

The Campus Dean of Student Development is responsible for the consistent and uniform implementation of this regulation and related SPGs. The Dean of Student Development or designee is responsible for meeting with the underage student and parents or

7. The records of material required for entrance will be kept by the Dean of Student Development and the District Central 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 www.pima.edu.

legal guardian to explain college-wide policies, code of conduct and procedures of special admission of underage students.

General Parameters:

1. The College will supplement the education being provided to the underage student by the secondary school system or alternate provider with no more than eight semester hour credits. Underage students being home schooled may enroll for more than eight semester credit hours with special permission. However, enrollment at PCC is not intended to supplant home schooling.
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.

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 commis-

sioned 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 he/she is domiciled for one year, except that a person whose domicile is in this state is entitled to classification as an in-state student if he/she meets one of the following requirements:
   a. His/her parent's domicile is in this state and his parent is entitled to claim him as an exemption for state and federal tax purposes.
   b. He/she is an employee of an employer that transferred him/her to this state for employment purposes or he/she is the spouse of such employee.

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, so long as such person maintains continuous attendance.

5. A person who is a member of the armed forces of the United States stationed in this state pursuant to military orders or who is the spouse or a dependent child as defined in Section 43-1001 of the armed forces of the United States 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 an Indian tribe recognized by the United States Department of the Interior whose reservation 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.

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)

The Arizona Board of Regents and the State Board of Directors for Community Colleges shall adopt guidelines applicable to all institutions under their respective jurisdictions that will insure 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.

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

The Arizona Board of Regents and the State Board of Directors for Community Colleges 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.**

Beginning **July 1, 2002, all new students** admitted to PCC will be automatically issued an **Assigned 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 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 College Adult Education Centers (PCAE). Additionally, the institutional TOEFL (Test of English as a Second Language) is available at the West Campus Assessment Center.

Advising

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

Requirements

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

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

Advising Resources for Students

All students are urged to make use of the College Catalog, Schedule of Classes, and the Student Handbook when selecting courses or developing an educational plan. These publications are available at all Advising and Counseling Centers or at www.pima.edu. 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 Secondary Schools
- New England Association of Colleges and Schools, Inc.
- North Central Association of Colleges and Secondary Schools
- Northwest Association of Secondary and Higher Schools
- 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.

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.org/ap/students/index.html).

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/english/diploma.htm).

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
American History	4 or 5	Social and Behavioral Sciences	HIS 141 & 142	6
Art History	3, 4 or 5	Humanities and Fine Arts—Humanities	ART 130 & 131	6
Biology	4 or 5	Biological and Physical Sciences	BIO 181IN & 182IN	8
	3	Biological and Physical Sciences	BIO 100	4
Chemistry	4 or 5	Biological and Physical Sciences	CHM 151IN & 152IN	10
	3	Biological and Physical Sciences	CHM 151IN	5
Computer Science 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
Economics 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
English Literature/Composition	4 or 5	3 credits of English Composition	WRT 101	3
Language/Composition	4 or 5	3 credits of English Composition	WRT 101	3
Environmental Science	4 or 5	Biological and Physical Sciences	ENV 104 & 105	4
European History	4 or 5	Social and Behavioral Sciences	HIS 101 & 102	6
French Language	5	Other Requirements—Second Language	FRE 101,102, 201 & 202	16
	4	Other Requirements—Second Language	FRE 101, 102 & 201	12
	3	Other Requirements—Second Language	FRE 101 & 102	8
	2	Other Requirements—Second Language	FRE 101	4

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
French Literature	5	Other Requirements—Second Language	FRE 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	FRE 101, 102 & 201	12
	3	Other Requirements—Second Language	FRE 101 & 102	8
	2	Other Requirements—Second Language	FRE 101	4
German	5	Other Requirements—Second Language	GER 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	GER 101, 102 & 201	12
	3	Other Requirements—Second Language	GER 101 & 102	8
	2	Other Requirements—Second Language	GER 101	4
Latin- Virgil	5	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	LAT 101, 102 & 201	12
	3	Other Requirements—Second Language	LAT 101 & 102	8
	2	Other Requirements—Second Language	LAT 101	4
Latin- Literature	5	Other Requirements—Second Language	LAT 101, 102, 201 & 202	16
	4	Other Requirements—Second Language	LAT 101, 102, & 201	12
	3	Other Requirements—Second Language	LAT 101 & 102	8
	2	Other Requirements—Second Language	LAT 101	4
Math Statistics	3, 4 or 5	Mathematics	MAT 167	3
Mathematics AB	3, 4 or 5	Mathematics	MAT 220	3
Mathematics BC	4 or 5	Mathematics	MAT 220 & 231	9
	3	Mathematics	MAT 220	5
Music Literature	5	Humanities and Fine Arts—Humanities	MUS 201 & 202	6
	4	Humanities and Fine Arts—Humanities	MUS 201	3
	3	Humanities and Fine Arts—Humanities	MUS 151	3
Music Theory	5	Humanities and Fine Arts—Art List	MUS 125 & 127	4
	3 or 4	Humanities and Fine Arts—Art List	MUS 125	3
	2	Humanities and Fine Arts—Art List	MUS 102	3

Advanced Placement (AP) Table *(continued)*

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
Physics B	3, 4 or 5	Biological and Physical Sciences	PHY 121/121LB & 122/122LB	10
Physics CE	4 or 5	Biological and Physical Sciences	PHY 216/216LB	5
Physics CM	4 or 5	Biological and Physical Sciences	PHY 210/210LB	5
Political Science American Government & Politics	3, 4 or 5	Social and Behavioral Sciences	POS 110	3
Comparative Government & Politics	3, 4 or 5	Social and Behavioral Sciences	POS 140	3
Psychology	4 or 5	Social and Behavioral Sciences	PSY 101	4
Spanish Language	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
Spanish Language & Literature	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
Spanish Literature	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
Chemistry		None	None	None
Computer Science	5	Other Requirements— (b)Computer Science, Critical Thinking, Logic, Mathematics or Science	CIS 100	3
Biology	5	Biological and Physical Sciences	BIO 181IN & 182IN	8
	4	Biological and Physical Sciences	BIO 181IN	4
Economics	5	Social and Behavioral Sciences	ECN 200	3
English	5	English Composition	WRT 101	3
French	5	Other Requirements— Second Language	FRE 101 & 102	8
Geography	5	Biological and Physical Sciences	GEO 101	4
German	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
Latin	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
Mathematics	5	Mathematics (except AGEC-B and AGEC-S)	MAT 151	4
Music	5	Humanities and Fine Arts—Humanities	MUS 201 & 202	6
Physics	5	Biological and Physical Sciences	PHY 210, 216 & 221	14
Psychology	5	Social and Behavioral Sciences	PSY 101	3
Spanish	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.

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.

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

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

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

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

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
CLEP General Exams				
College Mathematics	500	None	MAT 122	3
English Composition	500	None	WRT 100	3
Humanities	500	Humanities and Fine Arts—Humanities	HUM 110	4
Natural Science	565	Biological and Physical Science requirements	BIO, departmental elective credits	4
Social Science/ History	500	Social and Behavioral Science General Education requirements	HIS, departmental elective credits	3
CLEP Subject Exams				
American Government	50	Social and Behavioral Science General Education requirements	POS 110	3
American Literature	55	Humanities and Fine Arts/Historical Perspective General Education requirements	LIT 265	3
Analyzing & Interpreting Literature	50	None	LIT 286	3
Calculus with Elementary Functions	50	Math General Education requirement for all AGECs	MAT 220	3
College Algebra	50	Math General Education requirement for AGEC-A	MAT 151	4
College Algebra-Trigonometry	50	Math General Education requirement for AGEC-A	MAT 151 & 182	7
College-Level French Language	(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

CLEP Subject Exams (continued)

Exam Title	Exam Score	PCC General Education Requirement	PCC Course Equivalency	PCC Credit
College-Level German Language	(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
College-Level Spanish Language	(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
English Literature	55	Fulfills 3 credits of Humanities and Fine Arts/Historical Perspective General Education requirements	LIT 260	3
Freshman College Composition	60	Satisfies English Composition General Education requirement	WRT 101 & 102	6
General Biology	50	Satisfies Biological and Physical Science General Education requirements	BIO 100 and 4 credits of BIO elective credit	8
General Chemistry	50	Satisfies Biological and Physical Science General Education requirements	CHM 151 & 152	10
History of the United States I: Early Colonization to 1877	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
History of the United States II: 1865 to Present	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
Human Growth & Development	50	None	ECE 106	3

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

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.

Student Policies

Student Rights and Responsibilities

All PCC students are considered to be responsible adults and are accountable for their own behavior. The College expects all students to obey local, state, and federal laws and follow the College's standards of conduct.

For more information on student rights and responsibilities, please read 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.

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**, or call 206-45600 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. The instructor will fill out the Y grade form, listing the reason for the special withdrawal.

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.
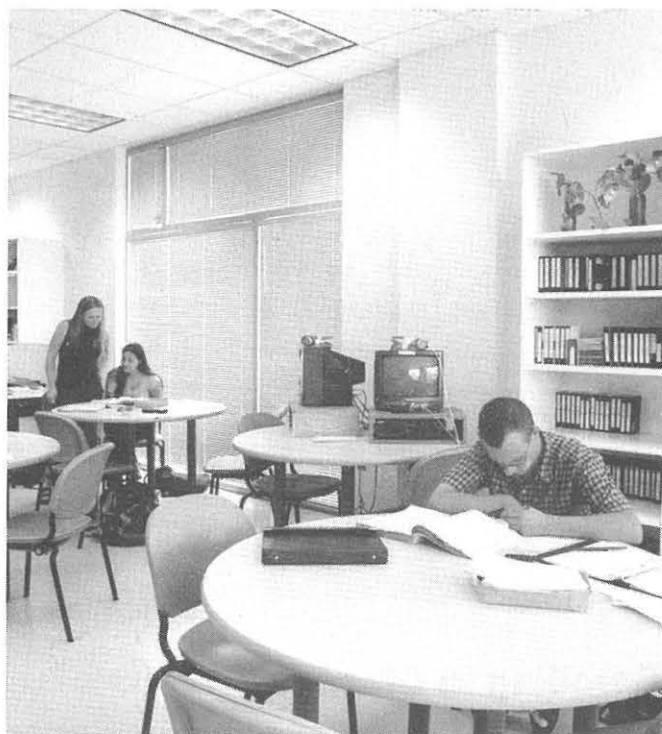
Grade Point Average (GPA) Calculation

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

Starting Spring 2003, grade mailers will no longer be sent to students' homes. 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. Students who meet the criteria can have up to three consecutive terms of course work ignored in figuring 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.
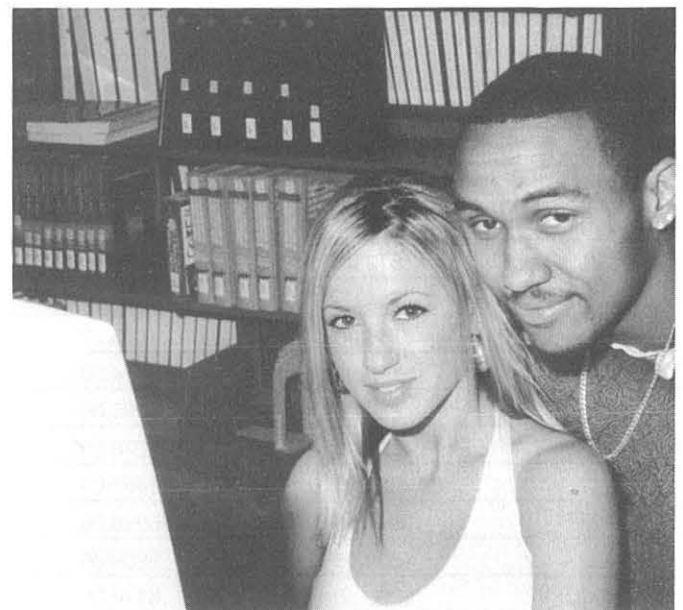
Costs and Payments

Tuition and Fees

The following information reflects the College's tuition, fee, and refund policies for the Fall 2003, Spring 2004, and Summer 2004 (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	546.00	2912.00
15	546.00	3081.00
16	546.00	3250.00
17	546.00	3419.00
18	546.00	3588.00
19	588.00	3799.00
20	630.00	4010.00
21	672.00	4221.00
22	714.00	4432.00
23	756.00	4643.00
24	798.00	4854.00
25	840.00	5065.00
26	882.00	5276.00
27	924.00	5487.00
28	966.00	5698.00
29	1008.00	5909.00
30	1050.00	6120.00

Current Fees *(rates subject to change)*

Processing Fees

Semester Processing Fee	$5.00
Out-of-Country/State Application Fee	$25.00
Transcripts (per copy)	$5.00
Transcripts (rush copy)	$10.00
Degree/Certificate Application	$15.00
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

Miscellaneous Credit Course Fees

Misc. Lecture Fee	Not to exceed $50 per course (recovery of extraordinary course-specific costs)
Misc. Laboratory Fee	Not to exceed $50.00 per course
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 Mechanics Program	Not to exceed $75.00
Course-Related Field Trip	Based on actual cost of field trip
Culinary Arts Program	$140.00
Digital Arts Program	Not to exceed $60.00
Environmental Technology Program	Not to exceed $75.00
Education/Post-Baccalaureate Program Foundations (per credit hour)	$20.00
Student Teaching	$500.00
Truck Driver Training (4 credit hours)	$2,130.00
Truck Driver Training (8 credit hours)	$4,260.00
Truck Driver Training (12 credit hours)	$5,510.00
Truck Driver Training (23 credit hours)	$7,200.00

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 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. The student, however, has the final responsibility to drop unwanted classes.

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)

You can make your tuition and fees payment at any campus Cashier's Office, via phone (MAX 2000, (520) 206-4880, credit cards only), or via our web stie at www.pima.edu (credit card or check). You cannot make a payment over the phone directly to a person.

If you pay via check please make it out to Pima Community College. Please write your student identification number (which is either your social security number or a College assigned ID number). Please note that it is College policy to write student ID numbers on checks when students fail to do so. When paying in person at least one form of legal identification is required.

Pima Community College offers short term tuition loans for Arizona resident and eligible military service veterans. Stop by any campus Cashier's Office for more information on tuition loans. Eligible veterans at the Downtown Campus need to visit the Admissions Office to complete their loan paperwork.

Students can pay their tuition and fees at any campus Cashier's Office. Accepted payments include cash, check, money order, and credit cards. Financial aid recipients need to confirm payment with with the campus Financial Aid Office. Tuition loans are available for any Arizona residents, and for all qualified Veterans. Stop by any campus Cashier's Office for more details (Veterans attending the Downtown Campus must arrange for their tuition loans at the Admissions Office.)

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

Course Length (Enrollment Period)	Refund Deadline
Regular 16 weeks	within 13 calendar days after start of the semester
7 or more weeks	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 *Student Refund Policy for Noncredit Activities and Study Tours* on page 37

Note: Refer to the *Schedule of Classes* for the program starting dates. Refunds will not be issued for 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

Elapsed Portion of Class(es)	Refund (paid tuition)
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 (Days attended ÷ Days in period = Percentage completed).

2. Apply this same percentage to the total awarded Title IV aid for which the student established eligibility before withdrawing (Total aid disbursable X Percentage completed = Earned aid).

3. Subtract earned aid from disbursed aid. This is the earned aid. (Earned aid – Disbursed aid = Unearned aid.)

4. Distribute responsibility for returning unearned aid by the College and the student.

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

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

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

- The Wolslager Foundation Scholarship
  Eligibility criteria: Varies
  Value: Tuition and books

Foundation Awards

The PCC Foundation receives funds from various donors. The availability of these funds occurs at different times during the year. Recipients are selected from a pool of eligible applicants who have completed the Free Application for Federal Student Aid (FAFSA).

- 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

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

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
Michael J. Duran, J.D., Executive Director
Alex Hobson, Legal Counsel

Foundation Board of Directors

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Student Services and Student Life

Student Services

Admissions/Registration

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, please see the Admissions, Registration, and Records section of this catalog, or visit our web site at 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. Check the Schedule of Classes under Student Success for 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.

Special arrangements for 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 information in this section.

Bookstores

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 staff of the bookstore is available to assist students in selecting appropriate textbooks based on instructor and course reference number. For text Information and ordering, visit the bookstore web site at www.pima.bkstr.com.

Cafeterias

Cafeteria Services are provided by Chartwells 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 it's 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 employee *Bulletin*, 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.

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 from counselors on each campus. The counselor 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. (Veterans attending the Downtown Campus must arrange for their tuition loans at the Admissions Office.)

Childcare

Child Development Centers are located at Desert Vista Campus, Downtown Campus, and West Campus. Quality, convenient childcare is provided for toddlers and pre-school children. Students interested in this service should visit one of the centers and complete a registration form. This service is provided 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 every effort to insure that qualified individuals with a disability are provided a reasonable accommodation and promote respect for the dignity and equal treatment of individuals with disabilities.

Pima Community College is committed to providing college-wide educational support assistance for students with documented disabilities. Disabled Students Resources (DSR) assists students through the development of service plans, which incorporate classroom, lab and testing accommodations, as needed. Through the provision of accommodations, each student will have the opportunity to function to the best of his/her ability within the scope of the College's services, programs, and activities. 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, auxiliary aids and services, use of specialized equipment, taped texts, extended test times and mobility assistance.

Student requests for accommodation due to disability are processed through DSR Offices. DSR Specialists will provide intake assistance, eligibility determination with appropriate documentation, student services plans, and monitoring of student accommoda-

Student Support Services	CC	DC	DVC	DMAFB	EC	NELC	NW*	NOGALES	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	■	■	■		■		■			■	■
Vererans 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

*All NWLC Student Support Services will transition to the Northwest Campus during its anticipated opening in July 2003. At opening, the Northwest Campus will offer a full complement of Student Support Services.

tions. Students with disabilities may contact any DSR Office listed below to begin a request for accommodation or to continue an accommodation service plan each semester.

The College offers special Assistive Technologies available in the labs and libraries that assist students in succeeding in courses and completing degrees. PCC strongly recommends that students research the benefits of these technologies. Contact a Campus DSR Specialist at any campus for more information.

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 www.pima.edu.

Insurance

Accident insurance is provided under a blanket policy for Pima Community College students who are enrolled for credit courses. The insurance is available without additional cost to the student. The policy covers students for injuries incurred during College activities. Details of the coverage are available to students at the time of registration.

Supplementary 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 Central Office, and some off-campus sites.

Library Services

Pima Community College provides library services at all the campuses. 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. Materials are shared via courier and fax services. 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 activity. 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 Office of the Dean of Student Development. 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, when they register are required to sign an affidavit 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 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 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.

Health and Wellness

The overall health and wellness of students in mind, body, and spirit is important to their success at PCC. Through the Health and Wellness Promotion Resource Center located at West Campus, a number of services are provided to students. These include forums, health fairs, screenings, life style management classes, safe sex education programs, and disease prevention awareness programs.

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 Office of the Dean of Student Development 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*, a weekly newspaper, 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*.

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 – Intramural

Any member of the College—students, faculty, and staff—may participate in intramural activities. These sports are geared toward individual and team competition. Many activities are available and others are developed when enough interest is shown. Activities may include basketball, badminton, flag football, golf, tennis, volleyball, racquetball, and several two-mile cross-country runs.

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 Office of the Dean of Student Development.

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 that transfer into a four-year institution, courses that are designed to help students obtain 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 and Santa Cruz counties.

Traditional-Style Classes

PCC offers traditional-style classes in which students are required to attend lecture and/or lab on specified days and times throughout the 16-week fall and spring semesters.

Alternative-Style Classes

PCC offers several alternative-style classes that provide students with different teaching methods to fit students' learning styles and may provide students access to courses not offered through the traditional-style classes. These alternative styles 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 skill, 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://dv.pima.edu/~honors, where additional information about the Honors Program is available. For information about other honors societies, see Phi Theta Kappa.

Earning a Degree or Certificate

Degree, Certificate, and Graduation Requirements

Pima Community College offers degrees and certificates in a variety of areas. Each degree and certificate has specified program requirements for graduation. Degree and Certificate Requirements must be met before a degree or certificate is granted. See the Educational Programs section of this catalog for program requirements.

Each program 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. For example, a degree displays a required 64 credits. It lists MAT 151 College Algebra for 4 credits. A student completed MTH 150 College Algebra five years ago when it was 3 credits. The student may graduate because the student completed the required course, College Algebra, even if the student has not completed the 4-credit version of College Algebra and does not have 64 credits. The same is true if the student had transferred in a 3-credit version of College Algebra from a university. The student may graduate because the required coursework was fulfilled.

Earning a certificate or degree requires fulfilling all program course requirements including core/major courses, general education courses (when required), support courses, and any prerequisite courses to the core, general education, and/or support courses. Some certificates and degrees have non-course requirements. In addition to program course requirements, the College has Graduation Requirements. See each program display for the program requirement courses (core/major, general education, support/elective, prerequisite courses) and see the Graduation Requirements section.

Earning a Degree or Certificate

Prerequisite Courses

Prerequisites are in place to make sure students have the skills and knowledge needed to be successful in the program. Some prerequisites are general (reading or writing skill levels) and others are more specific, such as knowledge of computer graphics software. Prerequisites may be required in some programs. These courses may add a semester or more to the time needed to complete the certificate or degree. See an advisor or counselor.

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 Degrees and Certificates 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. In some cases, the student may select these courses with the assistance of an advisor and/or counselor.

Graduation Requirements

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

1. Must apply for graduation within one year of completion of degree requirements. Students failing to do so must apply for an exception 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. Students must complete the General Education requirements appropriate to the degree or certificate.

2. Must complete the General Education requirements appropriate to the degree or certificate.

3. Must complete the program core, support, and prerequisite requirements for the appropriate degree or certificate.

   a. Must 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. Must complete between 6 and 59 college credit hours to

earn a certificate. At least 6 hours of the total required to qualify for a certificate must be earned at PCC.

4. Must complete the reading requirement, if specified for the appropriate degree or certificate.

5. Must have an overall 2.0 grade point average (GPA) on a 4.0 grade point scale.

6. Must complete courses given the following rules regarding grades:

   a. A "C" grade or better is required for general education and core courses.

   b. Cannot count "D" or F" grades to fulfill graduation requirements for any transfer degree (Associate of Arts, Associate of Science and the Associate of Business Administration).

   c. A grade of "P" cannot be used for Arizona General Education Curriculum (AGEC) or any transfer degree degree (Associate of Arts, Associate of Science and the Associate of Business Administration).

   d. Can count a "D" grade for support courses only in workforce education (occupational) certificates and degrees (Associate of Applied Arts and Associate of Applied Sciences and in the Associate of General Studies).

7. Beginning with the Summer 2002 graduation. ALL students who complete an Associate degree will be required to take the Academic Profile as part of the official graduation process.

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 3.799 grade point average = Graduation with Honors

- 3.800 to 4.000 grade point average = Graduation with High 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 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 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.
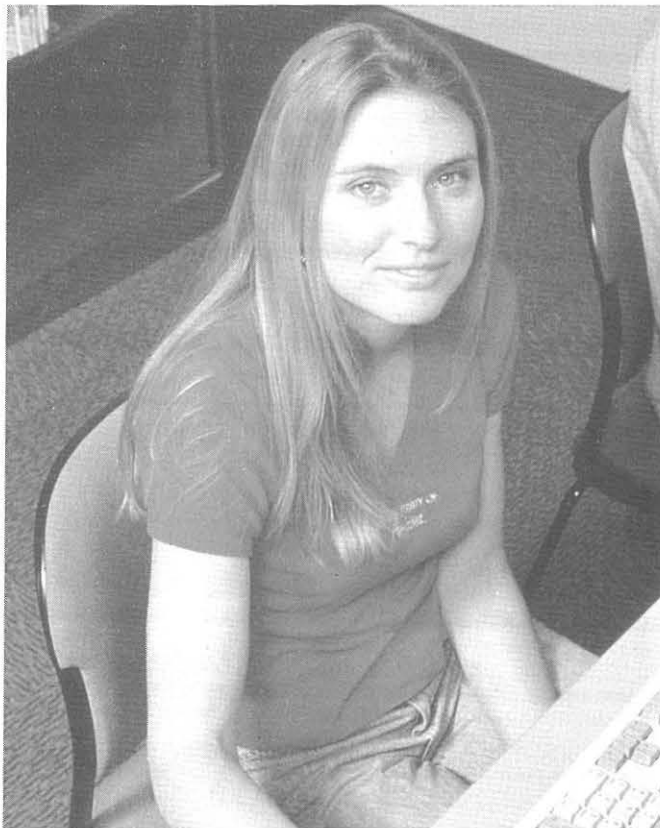
General Education Requirements by Degree or Certificate

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
Occupational Certificates:	
Occupational Certificates of 30 or more credits	.6
Occupational Certificates below 30 credits	.0
Occupational Degrees:	
Associate of Applied Arts (AAA)	.18-21
Associate of Applied Science (AAS)	.18-21
Associate of General Studies (AGS)	.18-21

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 assessments
- Complete REA 091 with a "C" grade or higher
- Be concurrently enrolled in REA 091 during their first semester of general education coursework.

Students who's 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 degrees and certificates:

- 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 plan, 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 list 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 or 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

General Education Requirements for AAA and AAS Degrees 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	0-3
Total General Education Credits Required	18-21

General Education Course Lists for AAA and AAS Degrees

Communication Requirement (6 credits)

Choose one of the following pairs. WRT 101 (or 107) and WRT 102 (or 108) are suggested for students planning to transfer to a university).

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 Category

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, 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 or 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.

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

Humanities and Social Science Requirement (6 credits)

Courses must be completed from at least two of the following categories.

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 category.

Humanities and Fine Arts Category

Any course from the AGEC Art list

Any course from the AGEC Humanities list or LIT 174

Any course from the AGEC Other Requirements Options: (c) Second Language list

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/Behavioral Sciences list

Any course from the AGEC Other Requirement Options: (d) International and Multi-Cultural 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 (0-3 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

Any course in this category meets the cultural diversity requirement

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

Arizona General Education Curriculum (AGEC)

The AGEC is a block of 35 or more credits that, when completed, can be transferred to another Arizona public community college or university 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	

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	Introduction to Music Theory	3	
MUS 108	Pima Jazz Band I	1	
MUS 109	Pima Jazz Band II	1	
MUS 111	Exploring Music Through Piano	3	
MUS 112	Community Jazz Band I	3	
MUS 113	Community Jazz Band II	3	
MUS 116	Philharmonic Orchestra I	1	
MUS 117	Philharmonic Orchestra II	1	
MUS 120	Concert Band I	3	
MUS 121	Concert Band II	3	
MUS 125†	Theory and Structure of Diatonic Music	3	
MUS 127†	Aural Perception: Diatonic and Rhythmic Skills	1	
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	

† 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 I	3	I, G
ART 131	Art and Culture II	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 110	Humanities I	4	I
HUM 111	Humanities II	4	I
HUM 251	Western Humanities I	3	I, G
HUM 252	Western Humanities II	3	I, G
HUM 253	Western Humanities III	3	I, C, G
HUM 260	Intercultural Perspectives	3	I, C
LIT 198	Major Literary Themes	3	I
LIT 231	Introduction to Shakespeare	3	I
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 268	Intro to Literature of the Americas	3	I
LIT 274	Native American Literature	3	I, C
LIT 288	Politics and the Novel	3	I
LIT 289	Literature and Film	3	I
MUS 151	Exploring Music	3	
MUS 160	Popular Music in America	3	
MUS 201	History and Literature of Music I	3	
MUS 202	History and Literature of Music II	3	
PHI 101	Introduction to Philosophy	3	
PHI 122	God, Mind, and Matter	3	

Humanities List (continued):

Course Number	Course Title	Credit Hours	AGEC Special Requirement
PHI 123	Philosophical Foundations of Science	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	
PHI 140	Philosophy of Religion	3	
REL 130	Asian Religions	3	G
REL 140	Philosophy of Religion	3	
REL 200	Religion in Popular Culture	3	C
REL 220	Old Testament	3	
REL 221	New Testament	3	
REL 234	Islam	3	G
REL 273	Judaism	3	C
THE 140	History of Theater I	3	
THE 141	History of Theater II	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	
WRT 206	Short Story Writing	3	

** 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†	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	3	

Course Number	Course Title	Credit Hours	AGEC Special Requirement
BIO 184IN	Plant Biology	4	
BIO 187IN	Intro 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	Introductory Chemistry	4	
CHM 122/ 122LB or CHM 122IN	Introductory Organic and Biochemistry	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†	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	4	
GLG 102IN	Introductory Geology II	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	

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

AGEC Categorical Requirement:
Mathematics (3 credits)

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

Course Number	Course Title	Credit Hours	AGEC Special Requirement
BUS 205	Statistical Methods in Economics and Business	3	
MAT 142	Topics in College Mathematics	3	
MAT 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	
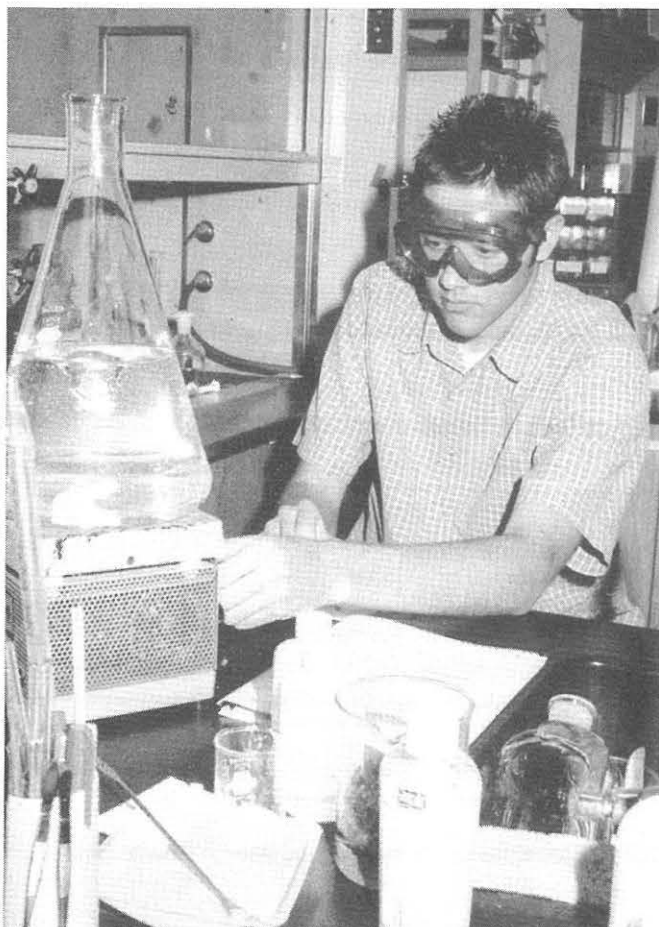
AGEC Categorical Requirement:
Social and Behavioral Sciences (6-9 credits)

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

Course Number	Course Title	Credit Hours	AGEC Special Requirement
AIS 101	Intro to American Indian Studies I	3	
ANT 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology/Linguistics	3	G
ANT 110	Buried Cities and Lost Tribes	3	
ANT 112	Exploring Non-Western Cultures	3	I, C, G
ANT 127	History and Culture of the Mexican-American in the SW	3	I, C, G
ANT 150	African-American History/People	3	C
ANT 202	Sex, Gender, and Culture	3	C
ANT 205	Intro to Southwestern Prehistory	3	C
ANT 206	Contemporary Native Americans of the Southwest	3	C
ARC 101	Human Origins and Prehistory	3	
ARC 110	Buried Cities and Lost Tribes	3	
ARC 205	Intro to Southwestern Prehistory	3	C
ECN 200	Basic Economic Principles	3	
ECN 201	Microeconomic Principles	3	
ECN 202	Macroeconomic Principles	3	
GEO 103	Cultural Geography	3	G
GEO 104	World Regional Geography	3	G
GEO 250	Intro to medical Geography	3	G
HIS 101	Intro to Western Civilization I	3	I, G
HIS 102	Intro to Western Civilization II	3	I, G
HIS 105	Intro to Chicano Studies I	3	I, C, G
HIS 113	Chinese Civilization	3	G
HIS 114	Japanese Civilization	3	G
HIS 122	Tohono O'odham History/Culture	3	I, C, G
HIS 124	History/Culture of the Yaqui People	3	C, G
HIS 127	History /Culture of the Mexican-American in the Southwest	3	I, C, G
HIS 141	History of the United States I	3	C, G
HIS 142	History of the United States II	3	C, G
HIS 147	History of Arizona	3	C
HIS 148	History of Indians of North America	3	C, G
HIS 150	African-American History and People	3	C
HIS 160	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 253	History of Women in the United States: Early America	3	C
HIS 254	History of Women in the United States: The 20th Century	3	C
HIS 274	The Holocaust	3	G
HIS 284	Modern Israel and Arab/Israeli Relations	3	G
HUM 260	Intercultural Perspectives	3	I, C
JRN 102	Survey of Media Communications	3	G
PHI 101	Introduction to Philosophy	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	
PHI 140	Philosophy of Religion	3	

Course Number	Course Title	Credit Hours	AGEC Special Requirement
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
POS 140	Intro to Comparative Politics	3	C, G
POS 160	Intro to Political Ideas	3	
POS 220	National and State Constitutions	3	
PSY 100A	Psychology I	3	
PSY 100B	Psychology II	3	
PSY 101	Introduction to Psychology	4	
PSY 132	Psychology and Culture	3	G
PSY 215	Human Sexuality	3	C, G
PSY 216	Psychology of Gender	3	C
PSY 218	Health Psychology	3	
PSY 230	Psychological Measurements and Statistics	3	
PSY 250	Introduction to Social Psychology	3	
PSY 265	Normal Personality I	3	
REL 140	Philosophy of Religion	3	
REL 200	Religion in Popular Culture	3	C
REL 220	Old Testament	3	
REL 221	New Testament	3	
REL 234	Islam	3	G
SOC 101	Introduction to Sociology	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	Women in Society	3	C
SOC 215	Human Sexuality	3	C, G
SOC 273	Sociology of Sport	3	C
SSE 110	Introduction to Social Welfare	3	
UAI 101(***)	Individuals and Society I	3	
UAI 102(***)	Individuals and Society II	3	
UAI 103(***)	Individuals and Society III	3	
UAI 104(***)	Individuals and Society IV	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.

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	

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
CIS 100	Introduction to Computers	3	
CIS 140	FORTRAN Programming	3	
CIS 160	COBOL Programming	3	(no longer offered)
FSN 154	Nutrition	3	
GLG 110	Environmental Geology and Natural Hazards	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	

c) Second Language:

Course Number	Course Title	Credit Hours	AGEC Special Requirement
APC 101	Elementary Apache I	4	
APC 102	Elementary Apache 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
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

c) Second Language (continued):

Course Number	Course Title	Credit Hours	AGEC Special Requirement
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	Spanish for Spanish Speakers I	4	G
SPA 104	Spanish for Spanish Speakers II	4	G
SPA 201	Intermediate Spanish I	4	G
SPA 202	Intermediate Spanish II	4	G
SPA 203	Writing and Oral Skills for Spanish Speakers	4	G
SPA 253	Intermediate Spanish for Spanish Speakers	3	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

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 I	3	I, G
ART 131	Art and Culture II	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

Course Number	Course Title	Credit Hours	AGEC Special Requirement
HIS 148	History of Indians of North America	3	C, G
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	Communicating with the Japanese	3	G
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
POS 230	Minority Groups and the Political Process	3	C
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	Women in Society	3	C
SOC 215	Human Sexuality	3	C,G
SOC 273	Sociology of Sport	3	C
THE 105	Theater Appreciation	3	C

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 addition 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 AGEC.

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 AGEC.

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 AGEC.

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   Advanced Certificate
An Advanced 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.

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.
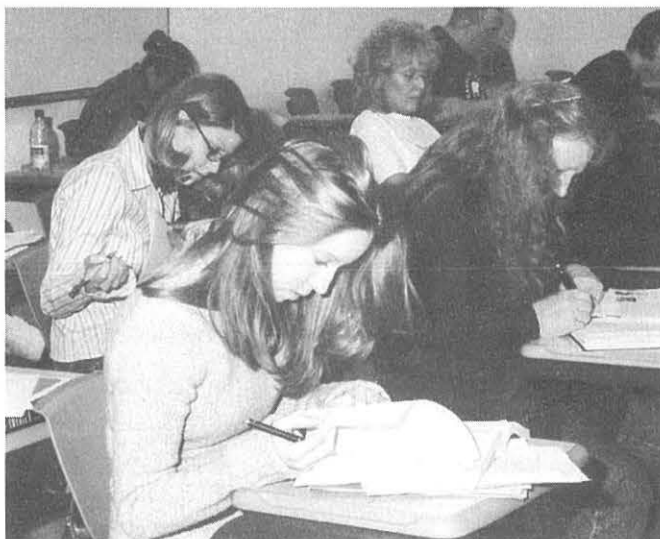
Credit Degrees and Certificates

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*
Accounting			
Accounting	CERT	CRTACCOUNTIN	WC
Accounting	AAS	AASACCOUNTIN	WC
Administration of Justice			
Administration of Justice	AAS	AASADMINJUST	EC
Administrative And Office Support Careers—See Office And Administrative Professions			
Archaeology			
Field Archaeology	CERT	CRTFLDARCHEO	WC
Archaeological Fieldwork —Advanced	CERA	CRDARCHFLDWK	WC
Computer Cartography	CERT	CRTCOMPARCHE	WC
Arts, Applied			
Applied Arts	AAA	AAAAPPLDARTS	WC
Automotive Technololgy			
Automotive Mechanics	CERT	CRTAUTOMECHS	DTC
Automotive Technology	AAS	AASAUTOTECHN	DTC
Aviation Technology			
Aviation Technology	CERT	CRTAVIATIONB	DVC
Advanced Aviation Technology	CERT	CRTAVIATIONA	DVC
Aviation Technology	AAS	AASAVIATION	DVC
Building And Construction Technologies			
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
Construction Management	AAS	AASCONSTMGMT	DTC
Electrical Utilities Technology	CERT	CRTELECTRICU	DTC

Occupational Program	Award	Program Code	Lead Campus*
Business			
Basic Business	CERT	CRTBUSINES-B	EC
Advanced Business	CERT	CRTBUSINES-A	EC
Business	AAS	AASBUSINESS	EC
Business and Industry Technology			
Basic Business and Industry Technology	CERT	Special **	CC
Advanced Business and Industry Technology	CERT	Special **	CC
Business and Industry Technology	AAS	Special **	CC
Computer-Aided Drafting Technology			
Basic Computer Aided Drafting	CERT	CRTCONDRFT-B	DTC
Advanced Computer Aided Drafting	CERT	CRTCONDRFT-A	DTC
Computer Aided Drafting Technology	AAS	AASELECMECHN	DTC
Computer Information Systems			
Computer Programming Specialist	CERT	CRTCMPPRGSP	WC
Small Computer Systems Administrator	AAS	AASCOMPSYSAD	WC
Computer Programmer/ Analyst	AAS	AASCMPPRGANL	WC
Computer Science--Network Administrator	CERT	CRTNETWRKADM	WC
Computer Science--Web Technologies	CERT	CRTWEBTECH	WC
Corrections			
Corrections Training Academy	CERT	Special **	EC
County Corrections Training Academy	CERT	Special **	EC
Pima County Juvenile Court Center's Detention Facility Supervision and Mentoring	CERT	Special **	EC
Youth Supervision in Corrections/ Detention	CERT	Special **	EC
Credit Union			
Basic Credit Union	CERT	CRTCRDUNIN-B	DTC
Advanced Credit Union	CERT	CRTCRDUNIN-A	DTC
Credit Union	AAS	AASCREDUNION	DTC
Culinary Arts			
Culinary Arts	CERT	CRTCULNRYART	DVC
Culinary Arts	AAS	AASCULNRYART	DVC
Dental Assisting Education			
Dental Assisting Education	CERT	Special **	WC
Dental Hygiene			
Dental Hygiene	AAS	Special **	WC
Dental Laboratory Technology			
Dental Laboratory Technology	AAS	Special **	WC
Dental Laboratory Technologist— Complete Dentures	CERT	Special **	WC
Dental Laboratory Technologist— Dental Ceramics	CERT	Special **	WC
Dental Laboratory Technologist— Fixed Bridgework	CERT	Special **	WC
Dental Laboratory Technologist— Partial Dentures	CERT	Special **	WC

Occupational Program	Award	Program Code	Lead Campus*
Digital Arts			
Digital Arts	CERT	CRTCOMMGRAPH	WC
Digital Arts—Printing Technology (Offset Printing)	CERT	CRTPRINTING	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
Diversity & Harmony Relations			
Certificate for Professional Development	CERT	CRTDIVERSITY	DTC
Early Childhood Education And Child Development Associate			
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	CRTCHILDDEV	DVC
Child Development Associate	AAS	AASCHILDDEV	DVC
Education			
Teacher Certification—Elementary or Secondary	CERA	CRDTEACHCERT	CC
Educational Technology			
Introductory Educational Technology	CERT	CRTINTEDUTEC	CC
Advanced Educational Technology	CERT	CRDAEDUCTECH	CC
Emergency Medical Technology			
Emergency Medical Technology	CERT	CRTEMEDTEC-B	EC
Emergency Medical Technology – Intermediate	CERT	CRTEMEDTEC-A	EC
Emergency Medical Technology – Paramedic	CERT	CRTPARAMEDIC	EC
Emergency Medical Technology – Paramedic	AAS	AASPARAMEDIC	EC
Environmental Technology			
Environmental Management	CERT	CRTENVIRMGMT	EC
Environmental Technology	AAS	AASENVIRTECH	EC
Fire Science			
Fire Science	CERT	CRTFIRESCIEN	EC
Fire Science	AAS	AASFIRESCIEN	EC
Fitness And Sport Sciences			
Coaching	CERT	CRTCOACHING	WC
Fitness Professional	CERT	CRTFITNESS	WC
Forensics and Crime Scene Technology			
Crime Scene Management	CERT	CRTFORENSICS	EC
Histotechnology			
Histologic Technician	CERT	CRTHISTOTECH	WC
Histologic Technician	AAS	AASHISTOTECH	WC
Hospitality/Tourism			
Travel Industry Operations	CERT	CRTTRVLINDUS	EC
Travel Industry Operations Options—Tourism	AAS	AASTOURDESDV	EC
Human Resources			
Human Resources	CERT	CRTHUMANRES	CC
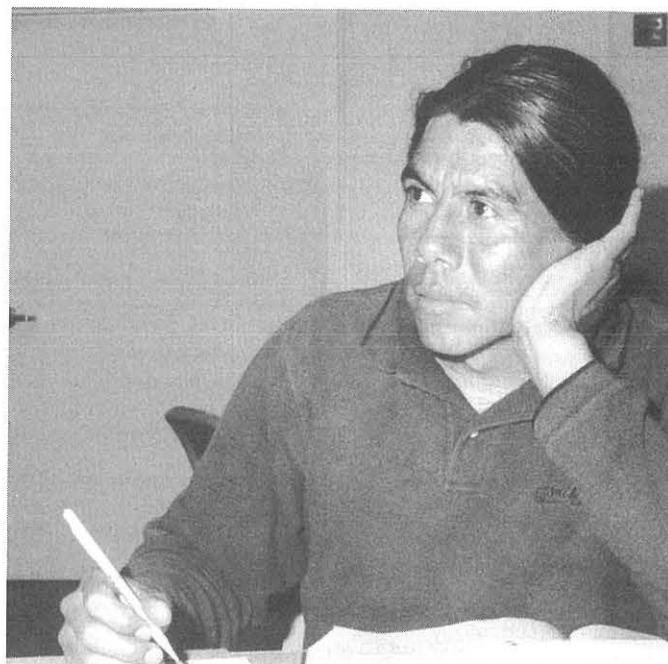
Occupational Program	Award	Program Code	Lead Campus*
Interior Design			
Interior Design	AAS	AASDESIGN	DTC
International Business Studies			
International Business Studies	AAS	AASINTLBUSIN	WC
Interpreter Training Program			
Interpreter Training Program	AAA	AAAINTPTRAIN	WC
Journalism and Media Publishing			
Print & Electronic Journalism	AAS	AASPRNTMEDIA	WC
Law Enforcement Related Instructon			
Basic Law Enforcement	CERT	Special **	EC
Basic Law Enforcement Supervision	CERT	Special **	EC
Law Enforcement	AAS	Special **	EC
Legal Assistant (Paralegal)			
Legal Assistant (Paralegal) – Advanced	CERA	CRDLEGALASST	DTC
Legal Assistant (Paralegal)	AAS	AASLEGALASST	DTC
Machine Tool Technology			
Machine Tool Technology – Machine Operator	CERT	CRTMACHNTOOL	DTC
Manual Machinist			
Mechanical Inspector			
Computer Numerical Control (CNC)			
Computer Numerical Control (CNC) Programmer			
Machine Tool Technology	AAS	AASMACHNTOOL	DTC

* 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*

Microcomputer Repair

Note: This program is a State Prison Program and is not open to the public. For microcomputer repair related instruction for the public, see *Technology, Microcomputer Technology – Certificate*

Occupational Program	Award	Program Code	Lead Campus*
Basic Microcomputer Repair	CERT	Special **	CC
Technical Microcomputer Repair	CERT	Special **	CC

Nursing

Associate Degree Nursing	AAS	Special **	WC

Office And Administrative Professions

Office Assistant	CERT	CRTADMINAIDE	DTC
Office Specialist	CERT	CRTADMINSPEC	DTC
Computer Applications Office Assistant	CERT	CRTCOMPAPPAD	DTC
Computer Applications Office Specialist	CERT	CRTCOMPAPPSP	DTC
Office and Administrative Professionals	AAS	AASADMINSUPP	DTC
Records and Information Management	AAS	AASMEDSECRTY	DTC

Pharmacy Technology

Pharmacy Technology	CERT	Special **	EC
Pharmacy Technology	AAS	Special **	EC

Public Safety Communications

Basic Public Safety Communications	CERT	CRTBSAFETYCM	EC
Public Safety Communications	CERT	CRTSAFETYCOM	EC

Radiologic Technology

Radiologic Technology – Magnetic Resonance Imaging	CERA	Special **	WC
Radiologic Technology	AAS	Special **	WC

Real Estate

Real Estate Sales/ Brokerage	CERT	CRTREALESTAT	DTC
Real Estate Sales/ Brokerage	AAS	AASREALESTAT	DTC

Respiratory Therapist Program

Respiratory Care	AAS	Special **	WC

Safety

Metropolitan Emergency Response System	CERT	Special **	EC

Social Services

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
Family Support Services	CERT	Special **	WC

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* 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*

Technology- Electronic and Optical Systems Technology

Technology	CERT	CRTTECHNOLGY	DVC
Semiconductor and Electronics Manufacturing Technology	AAS	AASTECSEMCON	DVC
Electronics Technology	AAS	AASTECELECTR	DVC
Electronic Telecommunications Technology	AAS	AASTECTELCOM	DVC
Microcomputer Technology	CERT	CRTTECCOMPUT	DVC
Microcomputer Technology	AAS	AASTECCOMPUT	DVC
Systems Networking Technology	AAS	AASTECNETWRK	DVC
Electro-Optical Assembly and Testing	CERT	CRTOPTICTECB	DVC
Optical Manufacturing	CERT	CRTOPTICTECA	DVC
Electro-Optics	AAS	AASOPTICSTEC	DVC

Translation Studies

Translation Studies	CERT	CRTTRANSLATE	DTC

Truck Driver Training

Basic Truck Driver	CERT	CRTTRUCK-B	CC
Professional Truck Driver	CERT	CRTTRUCKDRIV	CC
Straight Truck and Bus Driver	CERT	CRTTRUCKSBUS	CC
Commercial Truck Driver	CERT	CRTTRUCKDCOM	CC

Veterinary Technology

Veterinary Technician	AAS	AASVETTECH	EC

Welding

Welding	CERT	CRTWELDING	DTC
Welding	AAS	AASWELDING	DTC

Transfer Programs

Transfer Program	Award	Program Code
Administration of Justice	AA	AOAADMINJUST
American Indian Studies	AA	AOAAMRINDSTU
Anthropology	AA	AOAANTHROPOL
Apache *See Liberal Arts Degree*		AOALIBRALART
Archaelogy	AA	AOAARCHAEOLG
Arizona General Education Curriculum (AGEC-A, AGEC-B, and AGEC-S) Use program code of the transfer degree.	CERT	
Arts, Fine Arts *See Fine Arts*	AA	AOAFINEARTS
Asian Studies	AA	AOAASNSTUDY
Astronomy *See Science, Associate of Science*		AOSSCIENCE
Biochemistry *See Science, Associate of Science*		AOSSCIENCE
Biology *See Science, Associate of Science*		AOSSCIENCE
Business Administration	ABUS	AOBBUSIADMIN
Business Administration – Retailing	AA	AOABUSADRETL
Chemistry *See Science, Associate of Science*		AOSSCIENCE
Computer Information Systems *See Business Administration*		AOBBUSIADMIN
Creative Writing *See Liberal Arts Degree*		AOALIBRALART
Digital Arts *See Liberal Arts Degree*		AOALIBRALART
Education – Elementary, Secondary, Rehabilitation, Special Education *See Liberal Arts Degree*		AOALIBRALART
Engineering	AGS	AGSGENRSTUDY
English *See Liberal Arts Degree*		AOALIBRALART
Environmental Science	AA	AOAENVIROSCI
Fine Arts	AA	AOAFINEARTS
Fitness & Sport Sciences – Physical Education Emphasis *See Liberal Arts Degree*		AOALIBRALART
Fitness & Sport Sciences – Exercise Science or Exercise Science and Wellness Emphasis *See Science, Associate of Science*		AOSSCIENCE
French *See Liberal Arts Degree*		AOALIBRALART
Geology *See Science, Associate of Science*		AOSSCIENCE
German *See Liberal Arts Degree*		AOALIBRALART
Hebrew *See Liberal Arts Degree*		AOALIBRALART
History *See Liberal Arts Degree*		AOALIBRALART

Transfer Program	Award	Program Code
Hospitality	AA	AOAHSPTALITY
Interior Design	AA	AOADESIGN
Journalism *See Liberal Arts Degree*		AOALIBRALART
Liberal Arts	AA	AOALIBRALART
Manufacturing Technology	AS	AOSMANUFTECH
Mathematics *See Liberal Arts Degree*		AOALIBRALART
Media Communication *See Digital Arts or Journalism* *See Liberal Arts Degree*		AOALIBRALART
Microbiology *See Science, Associate of Science*		AOSSCIENCE
Molecular/Cellular Biology *See Science, Associate of Science*		AOSSCIENCE
Music	AA	AOAMUSIC
Nursing *See Associate Degree Nursing*		
Physics *See Science, Associate of Science*		AOSSCIENCE
Political Science	AA	AOAPOLITLSCI
Portuguese *See Liberal Arts Degree*		AOALIBRALART
Pre-Agriculture *See Liberal Arts Degree*		AOALIBRALART
Pre-Architecture	CERT	CRTPREARCHIT
Pre-Denistry *See Science, Associate of Science*		AOSSCIENCE
Pre-Law *See Liberal Arts Degree*		AOALIBRALART
Pre-Medicine *See Science, Associate of Science*		AOSSCIENCE
Pre-Pharmacy *See Science, Associate of Science*		AOSSCIENCE
Pre-Veterinary Science *See Science, Associate of Science*		AOSSCIENCE
Psychology *See Liberal Arts Degree*		AOALIBRALART
Public Administration	ABUS	AOBPUBLADMIN
Recreation/Tourism	AA	AOARECTOUR
Reserve Officer Training Corp (ROTC)	CERT CERT CERT	CRTAIRFROTC CRTARMYROTC CRTNAVYROTC
Russian *See Liberal Arts Degree*		AOALIBRALART
Science, Associate of Science	AS	AOSSCIENCE
Social Services	AA	AOASOCIALSRV
Social Services, Substance Abuse Speciality	AA	AOASUBSTABUS
Social Services, Youth Services Speciality	AA	AOAYOUTHSERV
Sociology	AA	AOASOCIOLOGY
Spanish *See Liberal Arts Degree*		AOALIBRALART
Speech Communication *See Liberal Arts Degree*		AOALIBRALART
Theater	AA	AOATHEATER

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
Business and Office	
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 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
Food Service	
Baker's Helper	CTD
Cook's Helper	CTD
Kitchen Helper	CTD
Pantry Worker	CTD
Preparation Cook	CTD

Health Occupations

(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
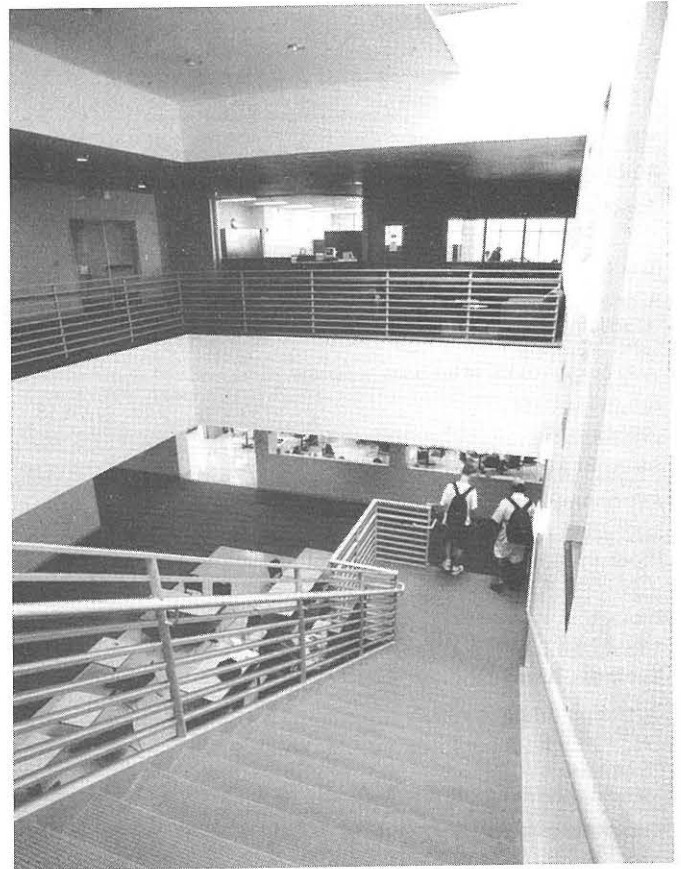
Practical Nurse Proficiency Evaluation	CTD
Psychiatric Assistant	CTD
RN Refresher Course	CTD
Surgical Instrument Technician	CTD
Surgical Technologist	CTD
Venipuncture*	CTD
Child Care	
Child Care Assistant Teacher	CTD
Employment Success Skills	
Employability Skills	CTD
Job Readiness Skills	CTD
Material Handler	
Inventory Clerk	CTD
Material Handler	CTD
Receiving Clerk	CTD
Shipping Clerk	CTD
Warehousing Clerk	CTD
Workforce Basic Skills	
Mathematics	CTD
Reading/Interpreting Literature	CTD
Science	CTD
Social Studies	CTD
Writing	CTD

Associate of Arts, Associate of Business Administration, and Associate of Science Degree Transferability to Regional Universities

The table below provides direction to a student regarding how Pima Community College's courses within the Associate of Arts (A.A.), Associate of Business Administration (ABUS), and Associate of Science (A.S.) degrees transfer to the three state public universities and to other regional universities. Since all universities have distinct general education and degree requirements, it is important for a student to recognize the differences. This table only provides evidence as to the transferability of each PCC transfer degree.

For each associate of arts or associate of science degree program listed below, a percentage is given indicating how well each degree meets Pima Community College's curriculum standards for transferability to the indicted institution. One of the standards for transfer requires that seventy percent (70%) of the degree's core and support courses transfer as credit in a major. An "NT" means that the degree program does not meet the standard for transferability, and thus less than seventy percent (70%) of the core and support courses transfer as credit in a major.

The transfer percentages give some indication of what percentage of credits for courses a student can expect to receive, and what assurance the courses within the associate degree are intended to transfer.

In every case, a student should see an advisor or counselor for detailed transfer information and for requirements to fulfill a bachelor's degree.

Examples:

1. The Associate of Arts in Anthropology Degree meets Pima Community College's curricular standard for transferability to Arizona State University, Northern Arizona University, and the University of Arizona. A student is assured that 100% of the courses in the degree will transfer to these institutions.

2. The Associate of Arts in Administration of Justice Studies transfers to Northern Arizona University (100% of core and support courses) and Western New Mexico University (100% of core and support courses). It does not meet the standard for transfer to Arizona State University or the University of Arizona. The student should see an advisor or counselor about transfer to any of these universities, but in particular about transfer to Arizona State University and the University of Arizona.

Exceptions:

Not all regional universities are represented. Grand Canyon University and Tucson University College of Arts and Sciences are not represented because at this time Pima Community College does not have articulated agreements with these institutions. These universities will be added when agreements are signed. However, some courses and degrees will transfer to these institutions; see an advisor or counselor for transfer information.

	ASU	NAU	UA	OTHER
Administration of Justice Studies A.A.	NT	100%	NT	WNMU: 100%
American Indian Studies A.A.	100%	83%	100%	
Anthropology A.A.	100%	100%	100%	
Archaeology A.A.	87%	93%	93%	
Asian Studies A.A.	100%	100%	100%	
Associate of Science A.S.	100%	100%	100%	
Business Administration A.B.	100%	100%	100%	UPHX: 100%
Business Administration— Retailing - A.A.	75%	75%	88%	
Design A.A.	NT	100%	NT	
Environmental Science A.A.	92%	77%	92%	
Fine Arts A.A.	100%	97%	86%	
Hospitality/Tourism Hospitality - A.A.	NT	100%	NT	
Liberal Arts A.A.	100%	100%	100%	
Music A.A.	71%	95%	100%	
Political Science A.A.	100%	100%	100%	
Public Administration A.B.	78%	86%	93%	UPHX: 100%
Recreation/Tourism A.A.	71%	NT	NT	
Social Services A.A.	NT	86%	NT	
Social Services Gerontology Specialty - A.A.	NT	82%	NT	
Social Services Substance Abuse Specialty - A.A.	NT	90%	NT	
Social Services Youth Services Specialty - A.A.	NT	75%	NT	
Sociology A.A.	92%	100%	100%	
Theater A.A.	81%	100%		100%

Note: Figures pertain to 00/01 CEG information.

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.		
Subtotal		**3**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Subtotal		**20**

Required Support Courses			
BUS 100		Introduction to Business	3
BUS 200		Business Law	
or	BUS 220	Legal Environment of Business	3
CSA 101		Computer Fundamentals	
or	CIS 100*	Introduction to Computers and Information Systems	3
MGT 110		Human Relations in Business and Industry	3
WRT 101*		Writing Fundamentals	
or	WRT 107	Writing I for Non-Native Speakers of English	
or	WRT 154	Career Communications	3
Subtotal			**15**

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 6
  See General Education section, page 49.

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

Subtotal 18

Course Number	Course Title	Credit Hours
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 205*	Corporate and Partnership Tax 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
Subtotal 29-30		

Required Support Courses

BUS 100	Introduction to Business	3
BUS 200	Business Law	
or 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

Subtotal 21-24

Total credits as displayed . . . . 68-72§

* 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.

Administrative and Office Support Careers

See **Office and Administrative Professions**

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 offers a broad range of skills training. 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 this requirement.
   See General Education section, page 49. for further options.

Computer and Information Literacy Requirement 0-3
   See General Education section, page 49.

Subtotal 9-12

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
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
Subtotal. 30			

Required Support Courses			
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
Subtotal. 22			

Total credits as displayed . . . . 61-64§

continued next page

* 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 require-
  ments 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 51.
Humanities and Fine Arts 6-9
  See General Education section, page 51.
Biological and Physical Sciences 8
  See General Education section, page 51.
Mathematics 3
  See General Education section, page 51.
Social and Behavioral Sciences 6-9
  See General Education section, page 51.
Other Requirement Options 0-6
  See General Education section, page 51.
Special Requirements
  The I, C, and G requirements should be fulfilled by courses in the above categories. See General
  Education section, page 51.
Subtotal . . . . **35 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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 210	Police Community and Human Relations	3
AJS 212*	Juvenile Justice Procedures	3
AJS 225	Criminology	3
AJS 246	Race and Ethnicity Issues in the Administration of Justice	3
Subtotal **27**		

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. 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 require-
  ments 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 or 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

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 51.

Humanities and Fine Arts 3
   ANT 206 fulfills 3 credits, complete one course from the Art List in the General
   Education section, page 51.

Biological and Physical Sciences 8
   See General Education section, page 51.

Mathematics 3
   See General Education section, page 51.

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.

Subtotal . . . . 20 ¥

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
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
Subtotal. 15			

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.

Subtotal 25-29

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

† 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 basic and advanced certificates that emphasize 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 (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 51.

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 51.

Biological and Physical Sciences 8
 See General Education section, page 51.

Mathematics 3
 See General Education section, page 51.

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
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*	Archaeology	3
Non-Western Civilization		3
Complete one of the following:		
ANT 205	Introduction to Southwestern Prehistory.	
or ANT 206	Contemporary Native Americans of the Southwest	
ANT ELEC.		6-8

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

Subtotal 27-29

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   Women in Society 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.

¥ 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.

Archaeology *(See also Anthropology)*

- Field Archaeology Certificate
- Archaeological Fieldwork Advanced Certificate
- Computer Cartography Certificate
- Archaeology — Associate of Arts Degree for Transfer

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. Upon the completion of the courses listed, an individual will receive either a certificate in field archaeology or a certificate in archaeological fieldwork, a certificate in Computer Archaeology and Cartography, or an Associate of Arts Degree in Archaeology.

Field Archaeology Certificate

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 51.
Subtotal. 3

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

Choose one of the following options: 4-18
    (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 23-45

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.

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

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

Archaeological Fieldwork Advanced Certificate

Admissions requirement: A Baccalaureate or Associate of Arts Degree for Transfer from an accredited post-secondary institution.

Program Identification
Code: **CRDARCHFLDWK**

The archaeological fieldwork curriculum at Pima Community College is designed to provide interested persons with 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.

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.		
ARC 250*	Archaeology Laboratory.	4
ARC 275	Archaeological Excavation I.	4
ARC 276	Archaeological Exploration I.	4
Subtotal. 12		
Field Methods: Select 2 classes from the following:		
ARC 277*	Archaeological Excavation II	4
ARC 278*	Archaeological Exploration II	4
ARC 295*	Field Projects	3
Field Mapping: Select 2 classes from the following:		
ARC 281*	Global Positioning Systems I	2
ARC 285*	Field Mapping I.	4
ARC 286*	Field Mapping II	4
ARC 289*	Global Positioning Systems II.	2
Cartography: Select 2 classes from the following:		
ARC 267*	Introduction to Geographic Information Systems	3
ARC 283*	ArchaeoCAD.	3
ARC 284*	Archaeocartography.	3
Computer Related	Programming or Database.	6
Subtotal 24-30		
Total credits as displayed 41-46		

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

Computer Cartography Certificate

Program Identification
Code: **CRTCOMPARCHE**

See program faculty for information about this certificate.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
ARC 265	Mapping Concepts.	1
ARC 267*	Introduction to Geographic Information Systems	3
ARC 281*	Global Positioning Systems I	2
ARC 283*	ArchaeoCAD.	3
ARC 284*	Archaeocartography.	3
CIS	Programming languages electives.	6
GEO 230	Map and Air Photo Interpretation	4
Electives	In consultation with advisor	6
Total credits as displayed. 28		

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

Archaeology — Associate of Arts Degree for Transfer
Program Identification Code: **AOAARCHAEOLG**

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 51.

Humanities and Fine Arts 6
See General Education section, page 51.

Biological and Physical Sciences . . . . †
GLG 101IN and 102IN fulfill this requirement.

Mathematics . . . . †
MAT 151 fulfills this requirement.

Social and Behavioral Sciences . . . . †
ANT 102 and ARC 101 fulfill this requirement.

Other Requirements. . . . . †
BIO 109IN and MAT 182 fulfill this requirement.

Special Requirements . . . . *
ANT 102 fulfills the G requirement.

The I and C requirements should be fulfilled by courses in the above categories.

Subtotal . . . . **12 ¥**

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
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
ARC	101	Human Origins and Prehistory	3
ARC	225*	Archaeology	3
ARC	275	Archaeological Excavation I	3
Subtotal			**21**

Required Support Courses			
BIO	109IN	Natural History of the Southwest	4
CSA	101	Computer Fundamentals	3
GLG	101IN	Introductory Geology I	4
GLG	102IN*	Introductory Geology II	4
MAT	151*	College Algebra	4
MAT	182*	Trigonometry	3
ARC ELEC		. . . .	8-9

Complete 8-9 credit hours of electives after consultation with an anthropology/archaeology faculty advisor or counselor OR complete the first year of a transferable second language.

Subtotal **30-31**

Total credits as displayed 63-64§

* 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.

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.

Arizona General Education Curriculum (AGEC) Certificate for Transfer

- Arizona General Education Curriculum (AGEC) Certificate for Transfer

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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 (UA), Arizona State University (ASU), and Northern Arizona University (NAU). It is also applicable to the University of Phoenix (UPHX) and may be applicable to other colleges and universities. Students are strongly advised to complete the associate degree after completing this certificate. See your advisor about completing an associate degree.

Arizona General Education Curriculum (AGEC-A) Requirements - A grade of C or better is required 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 51.

Humanities and Fine Arts 6-9
   See General Education section, page 51.

Biological and Physical Sciences 8
   See General Education section, page 51.

Mathematics 3
   See General Education section, page 51.

Social and Behavioral Sciences 6-9
   See General Education section, page 51.

Other Requirement Options 0-6
   See General Education section, page 51.

AGEC Special Requirements . . . . *
   The I, C, and G requirements should be fulfilled by courses in the above categories.
   See General Education section, page 51.

Subtotal **35**

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 for Direct Employment

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Applied Arts — Associate of Applied Arts Degree for Direct Employment

**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.

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
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 I	3
ART 131	Art and Culture II	3
Subtotal		**18**

Art Electives 24
 Complete eight courses from any of the following categories:

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	3
ART	230	History of Photography	3

Art History and Art Education

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

Continued next page

**Program Identification
Code: AAAPPLDARTS**

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 (continued)

Art Electives (continued)

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 II	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	Clothing Selection	3
or			
FDC	132	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 (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 51.

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

Biological and Physical Sciences 8
  See General Education section, page 51.

Mathematics 3
  See General Education section, page 51.

Social and Behavioral Sciences 6-9
  See General Education section, page 51.

Other Requirements 0-3
  See General Education section, page 51.

Special Requirements
  ART 130 fulfills the I and G requirement. The C requirement should be fulfilled by courses in the above categories.
  See General Education section, page 51.

Subtotal . . . . 26¥

Course Number		Course Title	Credit Hours
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 I	3
ART	131	Art and Culture II	3
ART	210*	Drawing II	
or	ART 213*	Life Drawing	3
Subtotal 21			

Required Support Courses

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
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

Continued next page

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)*

Art Electives (continued)

Photography

ART	140*	Photography I	3
ART	141*	Photography II	3
ART	143*	Commercial Photography	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 II	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 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.

Asian Studies

- Asian Studies — Associate of Arts Degree for Transfer

Asian 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 51.

Humanities and Fine Arts 3
  HIS 101, HUM 260 fulfill 6 credits of this requirement. Complete one course from
  the ART LIST. See General Education section, page 51.

Biological and Physical Sciences 8
  See General Education section, page 51.

Mathematics 3
  See General Education section, page 51.

Social and Behavioral Sciences . . . . †
  GEO 103, HIS 113, and HIS 114 satisfy this requirement.

Other Requirement Options. . . . . †
  Second language courses fulfill this requirement.

AGEC Special Requirements . . . . †
  GEO 103 and HUM 260 fulfill this requirement.

Subtotal . . . . 20 ¥

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
GEO 103	Cultural Geography	3
HIS 113	Chinese Civilization	3
HIS 114	Japanese Civilization	3
HUM 260	Intercultural Perspectives.	3
JPN 202*	Intermediate Japanese II	5
REL 130	Asian Religions.	3
Subtotal. 20		

Required Support Courses

HIS 101	Introduction to Western Civilization I	3
HIS 102	Introduction to Western Civilization II.	3

Required Support Electives

(Select one course for 3 credit hours from the following list.) 3

ANT 102	Introduction to Cultural Anthropology and Linguistics
ART 130	Art and Culture I
ART 131	Art and Culture II
HUM 251	Western Humanities I
HUM 252	Western Humanities II
LIT 267*	World Literature: Narrative
POS 120	Introduction to International Relations
POS 140	Introduction to Comparative Politics

Continued next page

Asian Studies — Associate of Arts Degree for Transfer (continued)

Required Support Electives - continued

Electives 12-15
  Complete a combination of any of the following: JPN 101, 102, 201
  Additional courses from the support electives listed above.
  Any transferable elective course. See an advisor.

Subtotal **21-24**

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.

§ 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.

Associate of Arts Degree for Transfer in Liberal Arts

- Associate of Arts Degree for Transfer in Liberal Arts

Associate of Arts Degree for Transfer in Liberal Arts

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.

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 51.

Humanities and Fine Arts 6-9
  See General Education section, page 51.

Biological and Physical Sciences 8
  See General Education section, page 51.

Mathematics 3
  See General Education section, page 51.

Social and Behavioral Sciences 6-9
  See General Education section, page 51.

Other Requirement Options 0-6
  See General Education section, page 51.

AGEC Special Requirements . . . . *
  The I, C, and G requirement should be fulfilled by courses in the above categories. See General Education section, page 51.

Subtotal **35**

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

Select 25-29 transferable credits from transfer guides of interest, any transferable courses, or second language courses.

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.)

Subtotal **25-29**

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

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

Associate of Science Degree for Transfer

- Associate of Science Degree for Transfer

Associate of Science 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 51.

Humanities and Fine Arts 6-9
    See General Education section, page 51.

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 6-7
    See General Education section, page 51.

Other Requirement Options 0-6
    See General Education section, page 51.

AGEC Special Requirements . . . . *
    The I, C, and G requirement should be fulfilled by courses in the above category.
    See General Education section, page 51.

Subtotal . . . . **24¥**

Course Number	Course Title	Credit Hours
Required Core Courses: A grade of C or better is required in all courses for graduation.		
CHM 151/151LB/151IN*	General Chemistry I	
CHM 152/152LB/152IN*	General Chemistry II	
or		
PHY 210/210LB/IN*	Introductory Mechanics	
PHY 216/216LB/IN*	Introductory Electricity and Magnetism	10
MAT 220* or higher	Calculus I	3-5
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.)

Subtotal **36-40**

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

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

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

¥ AGEC requires 35 credits. This subtotal shows the AGEC credits notz 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: 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.

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

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.

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

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**21**

Automotive Technology — Associate of Applied Science Degree for Direct Employment

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.

Subtotal. 19

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
AUT 105	Light Line Maintenance	3
AUT 120	Engine Diagnosis and Repair.	
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	Automotive Transmission/Transaxle 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

Subtotal. 45

Total credits as displayed. . . . . 64§

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

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.

Aviation Technology

- Aviation Technology Certificate for Direct Employment
- 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) 206-6186.

Aviation Technology Certificate for Direct Employment

Program Identification
Code: **CRTAVIATIONB**

This certificate introduces students to the skills and knowledge needed for a career in aviation technologies and is the foundation for the Advanced Aviation Technology Certificate.

Course Number	Course Title	Credit Hours
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
Subtotal		**6**

Choose one of the following options: 7-8
(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

Composites Fabrication and Repair Option

AVM 123	Airframe Familiarization	3
AVM 210/210LB*	Advanced Composite Aircraft Repair I	5

Interior Installer Option

AVM 116	Tool Usage and Safety	2
AVM 121	Aircraft Interior Installer I	5

Structural Repair Option

AVM 101*	Structural Repair I	4
AVM 102*	Structural Repair II	4
Total credits as displayed		**13-14**

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

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.
Subtotal. 3

Course Number	Course Title	Credit Hours
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
Subtotal.		**6**

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

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.

**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.

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.

Subtotal. 18

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

Choose one of the following options: 42-46
(Department faculty advisor or counselor approval is recommended in the selection
of the program option.)

Airframe and Powerplant

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

Composites Fabrication and Repair

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

Interior Installer

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

Structural Repair

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

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.

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

A student planning on obtaining a 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 your transfer guide.

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
- Construction Management-Associate of Applied Science Degree
- Electrical Utilities Technology Certificate 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:

- A Basic Certificate provides basic skills for entry level helper positions in Facilities Maintenance

- An advanced certificate provides basic skills for entry level helper with options in Facilities Maintenance, HVAC-R , Electrical, Plumbing, Carpentry, and Control Systems

- 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

- 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 provides the vehicle by which the applicants can 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

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.

Course Number	Course Title	Credit Hours
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 112*	Basic Construction Mathematics**	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
Subtotal		**7**
Required Support Courses		
Choose 9 credits from the following list:		
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
CSA 100	Computer Literacy	1
Subtotal		**9**
Total credits as displayed		**16**

* This course has a prerequisite, co-requisite, or recommendation. See course description section.
** May be taken for credit by examination.

Advanced Building and Construction Technologies Certificate for Direct Employment

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 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.

BCT 100	Professionalism in Service for Building and Construction Technologies	1
BCT 111	Basic Safety**	1
BCT 112*	Basic Construction Mathematics**	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

Subtotal. 7

Required Support Courses

BCT 118*	Building and Construction Technologies Applied Mathematics I	3
CSA 100	Computer Literacy	1

Subtotal. 4

Choose one of the following options: 15-16
  Department chair or faculty advisor approval is recommended in the selection of the option.

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 172*	Building and Construction Technologies Electrical I	4

Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC-R)

BCT 103*	Principles and Concepts for HVAC	4
BCT 106*	Soldering and Brazing for Building and Construction Technologies	4
BCT 127*	HVAC Systems Applications.	4
BCT 172*	Building and Construction Technologies Electrical I	4

Electrical

BCT 104*	Introduction to Equipment Maintenance	4
BCT 126*	HVAC Electricity, Circuitry, and Controls	4
BCT 135*	National Electrical Code Residential Wiring Applications	4
BCT 172*	Building and Construction Technologies Electrical I	4

Plumbing

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

Carpentry

BCT 101	Principles of Construction.	3
BCT 102	Building Materials.	3
BCT 120*	Blueprint Reading for Construction	3
BCT 145*	Carpentry Framing	3
BCT 146*	Woodworking	3

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 with rapid advancement based on demonstrated skills required in the area of concentration taken. This level of employment requires good basic reading, writing, math and area of concentration skills. 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.

Advanced Building and Construction Technologies Certificate for Direct Employment
(Continued)

Control Systems

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 II	4
BCT	172*	Building and Construction Technologies Electrical I	4

Total credits as displayed **32-33**

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

** May be taken for credit by examination.

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

**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.

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 4
MAT 108 fulfills 2 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 .... †
CSA 100 fulfills this requirement.

Subtotal **16**

Course Number	Course Title	Credit Hours
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 112*	Basic Construction Mathematics**	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
Subtotal		**7**

Required Support Courses		
BCT 118*	Building and Construction Technologies Applied Mathematics I	3
CSA 100	Computer Literacy	1
MAT 108*	Practical Geometry and Trigonometry	2
Subtotal		**6**

Continued next page

Choose one of the following options: 31-36
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	108	Maintenance Management Concepts	3
BCT	120*	Blueprint Reading for Construction	3
BCT	151	Design, Operation, and Maintenance of Building Systems I	3
BCT	251*	Design, Operation, and Maintenance of Building Systems II	3
BUS	220	Legal Environment of Business	3
CSA	110	Microsoft Excel	3
DES	111	Fundamentals of Design	3
MGT	122	Supervision	3
RLS	101	Introduction to Real Estate Principles	3

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 Management	3
BCT	204*	Construction Surveying	3
BCT	280*	Uniform Building Code for Building and Construction Technologies I	3
BCT	281*	Uniform Building Code for Building and Construction Technologies II	3
BUS	220	Legal Environment of Business	3
CAD	101	Computer Aided Drafting Fundamentals	4

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 Framing	3
BCT	146*	Woodworking	3
BCT	280*	Uniform Building Code for Building and Construction Technologies I	3
Electives		Technical Electives	10

Complete 10 credit hours of elective courses with the approval of the department chair or program advisor.

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*	Uniform Building Code for Building and Construction Technologies I	3
BCT	281*	Uniform Building Code for Building and Construction Technologies 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

Continued next page

Building and Construction Technologies — Associate of Applied Science Degree
for Direct Employment *(continued)*

Electrical

BCT	103*	Principles and Concepts for HVAC	4
BCT	104*	Introduction to Equipment Maintenance	4
BCT	126*	HVAC Electricity, Circuitry, and Controls	4
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	225*	Electrical Distribution and Motor Controls for Buildings	4
BCT	235*	National Electric Code Commercial Wiring Applications	4

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	155*	Potable Water Plumbing	4
BCT	156*	Drain Systems Plumbing	4
BCT	242*	Cross-Connection Control	3
BCT	283*	Uniform Plumbing Code for Building and Construction Technologies	3

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

Electrical Utility Distribution

BCT	172*	Building and Construction Technologies Electrical I	4
EUT	101	Introduction to Electrical Utilities	3
EUT	102	Electrical Distribution	4
EUT	104*	Overhead and Underground Systems, Hardware, and Equipment	4
EUT	105*	Equipment Operations	2
EUT	106*	Measuring Electricity	3
EUT	107*	Substation Operations	2
EUT	108*	Protective Relaying	4
EUT	109*	Electronic Equipment Operations	4
EUT	110*	Power Plant Operations	2

Total credits as displayed .... **60-65§**

* 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.

Construction Management — Associate of Applied Science Degree

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

Communication Requirement 6
  See General Education section, page 49.
Analysis and Critical Thinking Requirement . . . . †
  MAT 187 and PHY 121/121LB/IN fulfill this requirement.
Humanities and Social Science Requirement 6
  See General Education section, page 49.
Computer and Information Literacy Requirement 3
  See General Education section, page 49.
Subtotal **15**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
BCT 101	Principles of Construction	3
BCT 102	Building Materials	3
BCT 120*	Blueprint Reading for Construction	3
BCT 122	Residential Construction	3
BCT 123	Concrete/Masonry	3
BCT 202	Construction Management	3
Subtotal		**18**
Required Support Courses		
ACC 101	Financial Accounting	3
BCT 204*	Construction Surveying	3
BUS 200	Business Law I	3
GLG 101IN	Introductory Geology I	4
MAT 187*	Precalculus	5
PHY 121/121LB/IN *	Introductory Physics I	5
PHY 122/122LB/LB *	Introductory Physics II	5
SPE 110	Public Speaking	3
Subtotal		**31**

Total credits as displayed . . . . **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.

Program Identification
Code: AASCONSTMGMT

This program provides entry-level skills and foundations in preparation for entry into the Construction Management work force. Students may also pursue a higher degree in construction management. Students interested in transferring to a university Construction Management program should contact that university for appropriate transfer courses or Pima Community College advisor or counselor located at the Downtown Campus.

Electrical Utilities Technology — Certificate for Direct Employment

Program Identification
Code: **CRTELECTRICU**

This certificate provides entry-level skills and knowledge of electrical utilities technology jobs and is the foundation for the Associate of Applied Science Degree in Building and Construction Technologies.

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 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.		
BCT 100	Professionalism in Service for Building and Construction Technologies	1
BCT 111	Basic Safety**	1
BCT 112*	Basic Construction Mathematics**	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
BCT 172*	Building and Construction Technologies Electrical I	4
EUT 101	Introduction to Electrical Utilities	3
EUT 102	Electrical Distribution	4
EUT 104*	Overhead and Underground Systems, Hardware, and Equipment	4
EUT 105*	Equipment Operations	2
Subtotal		**24**
Required Support Courses		
BCT 118*	Building and Construction Technologies Applied Mathematics I	3
CSA 100	Computer Literacy	1
HED 140	First Aid and Cardiopulmonary Resuscitation	1
Subtotal		**5**

Total credits as displayed 35

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

** May be taken for credit by examination.

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
- Business Administration - Retailing — Associate of Arts Degree 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 certificates/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

Course Number	Course Title	Credit Hours
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
MGT 110	Human Relations in Business and Industry	3
Total credits as displayed		**9**
Required Support Courses		
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: ACC, BUS, CIS, CSA, ECN, FIN, IBS, MGT, MKT, RLS		1-3
Subtotal		**7-9**
Total credits as displayed		**16-18**

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

Program Identification
Code: **CRTBUSINES-B**

This certificate introduces the student to basic business courses and is the foundation for the advanced business certificate.

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.

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 fulfills this requirement. See General Education section, page 49.

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

Subtotal **3**

Course Number	Course Title	Credit Hours
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 200	Business Law	3
or BUS 220	Legal Environment of Business	3
MGT 110	Human Relations in Business and Industry	3
Subtotal **12**		
Required Support Courses		
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
Subtotal **18**		

Total credits as displayed **33**

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

Business — Associate of Applied Science Degree For Direct Employment

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.

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.

Subtotal **12**

Course Number	Course Title	Credit Hours

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 200	Business Law	
or BUS 220	Legal Environment of Business	3
MGT 110	Human Relations in Business and Industry	3

Subtotal **12**

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	

Subtotal **27**

Options: Select a minimum of 12 credit hours from either Option A or B 12
(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

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

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.

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 51.

Humanities and Fine Arts 6
  See General Education section, page 51.

Biological and Physical Sciences 8
  See General Education section, page 51.

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.

Subtotal . . . . **23 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Math Requirement:		6
Please note: NAU and UA recommend the combination of MAT 173 and MAT 174.		
MAT 172* and 212*	Finite Mathematics Topics in Calculus	
or		
MAT 173* and 174*	Mathematics for Business I Mathematics for Business II	
Subtotal.		**31**

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

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.

¥ 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)

Business Administration - Retailing — 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 51.
Humanities and Fine Arts 6
  See General Education section, page 51.
Biological and Physical Sciences 8
  See General Education section, page 51.
Mathematics . . . . †
  MAT 151 fulfills this requirement.
Social and Behavioral Sciences . . . . †
  ECN 201, 202 and PSY 101 fulfill this requirement.
Other Requirements. . . . . †
  MAT 167 fulfills this requirement.
Special Requirements
  SOC 201 fulfills the C requirement.
  The I and G requirements should be fulfilled by courses in the above categories.
Subtotal . . . . **20 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
ACC 101	Financial Accounting	3
CSA 101	Computer Fundamentals	3
DES 111	Fundamentals of Design.	3
ECN 201*	Microeconomic Principles	3
ECN 202*	Macroeconomic Principles.	3
MAT 151*	College Algebra	4
MAT 167*	Introductory Statistics.	3
MKT 139	Retailing	3
Electives	Complete two of the following courses:	6
	MGT 124 Small Business Management	
	MKT 113 Salesmanship	
	MKT 150 Physical Distribution Management	
Subtotal.		**31**

Course Number	Course Title	Credit Hours
Required Support Courses		
PSY 101*	Introduction to Psychology.	4
SOC 101	Introduction to Sociology	3
Business Elective	. . . .	6
	Complete six transferable electives from the Family and Consumer Sciences-Retailing transfer guide or any transferable courses.	
Subtotal.		**10**

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

Program Identification
Code: **AOABUSADRETL**

Retailing is selling goods and services to final consumers. The retail industry includes food and fashion, soft goods and hard goods, services retailing, merchandise planning, advertising and promotion, and international retailing.

The courses in this program meet the University of Arizona lower divisional requirements for a bachelor of Science degree in family and consumer resources with a major in retailing and consumer studies. Students without retail experience are encouraged to either apply for admission to a marketing cooperative education program or independently attain employment in a retail establishment.

Chemistry — Associate of Science Degree for Transfer

A student planning on obtaining a chemistry degree should follow the **Associate of Science Degree for Transfer**.

Program Identification
Code: **AOSSCIENCE**

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 Technology

- 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

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
CAD 101 or CAD 102*	Computer Aided Drafting Fundamentals 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
Total credits as displayed		**16**

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

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.

Advanced Computer Aided Drafting — Certificate for Direct Employment

General Education Requirements - A grade of C or better is required for graduation.		
Communication Requirement See General Education section, page 49.		3
Analysis and Critical Thinking Requirement See General Education section, page 49.		3
Subtotal.		**6**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
CAD 101 or CAD 102*	Computer Aided Drafting Fundamentals 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 of 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		
Subtotal.		**24**
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 Technology — 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.

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 six options: Mechanical, Electro-Mechanical, Integrated Circuit Layout Design, Residential, Commercial, and Civil. The Mechanical option involves drafting and design fundamentals used in the manufacturing industry utilizing sketching, 2D and 3D CAD tools. The Electro-Mechanical option involves drafting and design fundamentals used in the electronics manufacturing industry utilizing sketching and CAD tools. The Integrated Circuit Layout Design option involves drafting and design fundamentals used in the integrated circuit industry utilizing sketching and CAD tools. The Residential, Commercial, and Civil options involve the preparation of working drawings used in the architectural, engineering, and construction industry utilizing sketching, 2D and 3D CAD tools.

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.

Subtotal. 18

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
Subtotal. 5		

Choose one of the following drafting options: 37
Department chair or faculty advisor approval is recommended in the selection of the program option.

Mechanical:

CAD 112	Mechanical Manufacturing Processes	3
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 100	Introduction to Machine Tool	3
MAC 110*	Machine Shop I.	4
Technical Electives 12		

Complete 12 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 112	Mechanical Manufacturing Processes	3
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 8		

Complete 8 credits from the following list with the approval of the department chair or faculty advisor:
CAD, ENG, and TEC .

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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, 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, 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, MAC, TEC and WLD.

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 require-
ments are fulfilled with a minimum of 60 credits.

Computer Information Systems

- Computer Programming Specialist — Certificate for Direct Employment
- Small Computer Systems Administrator — Associate of Applied Science Degree for Direct Employment
- Computer Programmer/Analyst — Associate of Applied Science Degree for Direct Employment
- Computer Related Degrees for Transfer
- Computer Science-Network Administrator — Certificate for Direct Employment
- Computer Science-Web Technologies — Certificate for Direct Employment

These programs are designed to prepare students for employment in the field, mainly as computer programmers and 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, data entry, programming, computer operations and systems analysis and design. For data entry see the Administrative and Office Support Careers program.

Computer Programming Specialist — Certificate for Direct Employment

Important: Before enrolling in this program students should consult a computer science faculty advisor.
Prerequisites for Programming in C option are CIS 129, 131, and 250.
Prerequisites for Programming in Visual Basic are CIS 102 and 129.

Program Identification
Code: CRTCMPPRGSP

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.

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
Choose one of the following options:			19-22
Option I: Programming in C			
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
Option II: Programming in Visual Basic			
CIS	106*	Database Concepts and Applications	4
CIS	139*	Beginning Visual Basic Programming	4
CIS	206*	Database Development	5
CIS	239*	Advanced Programming in Visual Basic	4
CIS Department Elective (for option II only)			3-5
CIS 102 or any CIS course 129 or higher including prerequisite courses			
Total credits as displayed			**19-22**

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

Small Computer Systems Administrator — Associate of Applied Science Degree for Direct Employment

Important: Before enrolling in this program students should consult a computer science faculty advisor. Program prerequisites are CIS 100, 102, 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 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.

Subtotal **12**

<div style="float:right">

Program Identification Code: **AASCOMPSYSAD**

This program is designed to prepare students for employment in the microcomputer field. Students are trained to select, install, configure and administer most small computer systems.

</div>

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
CIS	103*	Microsoft Windows XP Professional Administration	3
CIS	106*	Database Concepts and Applications	4
CIS	119*	Network Essentials	3
CIS	129*	Programming and Problem Solving I	
or	CIS 231*	Programming Fundamentals	4-5
CIS	187*	Data Processing Projects I	1-3
CIS	204*	Spreadsheet Applications	4
CIS	206*	Database Development	5
CIS	220*	Novell NetWare Networking and Administration	4
CIS	221*	Microsoft Windows Server	4
CIS	238*	Integrated Software Projects	4
CIS	280*	Systems Analysis and Design: Concepts and Tools	5
CIS	281*	Systems Analysis and Design: Applications	2
Subtotal			**43-46**

Required Support Courses			
CIS	136	Microcomputer Components	3
MAT	122	Intermediate Algebra	3
MGT	124	Small Business Management	3
PHI	120	Introduction to Logic	3
Subtotal			**12**

Elective 6-10
  Complete one of the following options:

Option 1:
ACC 101 and 102

Option 2:
Co-op Sequences: CIS 199, 299 (with a minimum of 6 total credit hours.)

Option 3:
Language Sequences: Complete two of the following CIS courses:
139, 239, 250, 265, 269, 278, 279

Total credits as displayed . . . . **74-81 §**

* 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 Programmer/Analyst — Associate of Applied Science Degree for Direct Employment

Important: Before enrolling in this program students should consult a computer science faculty advisor. Prerequisites are CIS 129 and computer literacy.

Program Identification Code: AASCMPPRGANL

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.

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
Required Core Courses - A grade of C or better is required for graduation.		
CIS 131*	Programming and Problem Solving II	5
CIS 139*	Beginning Visual Basic Programming	4
CIS 187*	Data Processing Projects I	
or CIS 287*	Data Processing Projects II	1-3
CIS 250*	Introduction to Assembly Language	3
CIS 265*	The C Programming Language	4
CIS 269*	Data Structures	5
CIS 278*	C++ and Object Oriented Programming	
or CIS 279*	Java Programming	5
CIS 280*	Systems Analysis and Design: Concepts and Tools	5
CIS 281*	Systems Analysis and Design: Applications	2
CIS 289*	Database Systems Design and Management	5
Subtotal		**39-41**

Required Support Courses

ACC 101	Financial Accounting	3
ECN 201*	Microeconomic Principles	3
MAT 172*	Finite Mathematics	3
WRT 101*	Writing I	3
WRT 102*	Writing II	3

Laboratory Science: Select one course from the following list: 4
   AST 101/101LB/IN, 102/102LB
   BIO 100IN, 105IN, 181IN
   GEO 102IN
   GLG 101IN, GLG 102IN

Subtotal **19**

CIS Elective 3
   Select a course below for 3 credit hours
   CIS 199, 220, 221, 225, 239, 266, 299

Total credits as displayed . . . . **64-66§**

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

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

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

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.
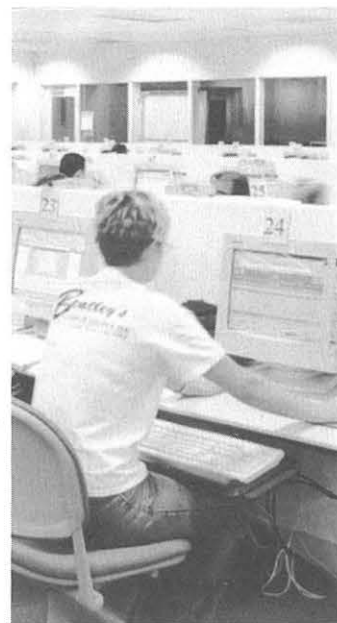
Computer Science-Network Administrator — Certificate for Direct Employment

Important: Before enrolling in this program students should consult a computer science faculty advisor. Program prerequisites are CIS 136 or TEC 130.

Course Number		Course Title	Credit Hours
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	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			**19**

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

Program Identification Code: CRTNETWRKADM

This certificate 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.
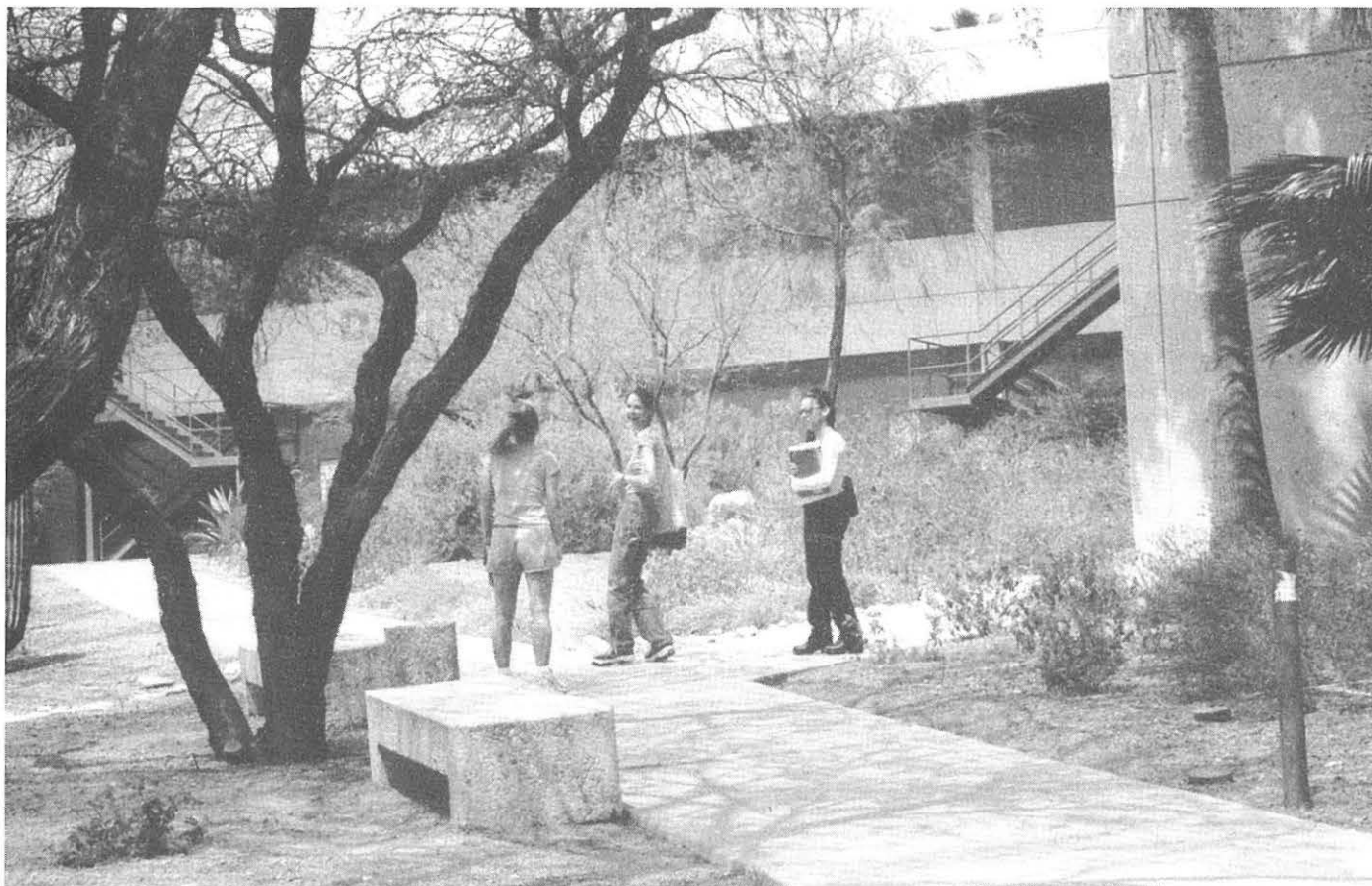
Computer Science-Web Technologies — Certificate for Direct Employment

Important: Before enrolling in this program students should consult a computer science faculty advisor.
Program prerequisites are CIS 102, 103, 129, 131, 250.

Program Identification
Code: **CRTWEBTECH**

This program 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.

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
CIS	119*	Network Essentials	3
CIS	121*	WWW Publishing and Support	3
CIS	137*	Introduction to the UNIX Operating System	3
CIS	265*	The C Programming Language	4
CIS	266*	CGI Programming with PERL	3
CIS	272*	Advanced Networking Concepts	4
CIS	273*	Advanced Web Page Development	4
CIS	279*	Java Programming	5
Total credits as displayed **29**			

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

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:

Complete the following Creative Writing courses:

WRT 205*	Introduction to Poetry Writing (3 credits)	
WRT 206*	Short Story Writing (3 credits)	
WRT 207*	Sophomore Composition (3 credits)	
WRT 215*	Advanced Poetry Writing (3 credits)	
WRT 216*	Advanced Fiction Writing (3 credits)	
WRT 217*	Creative Nonfiction (3 credits)	

In addition, the following courses are available as electives for this major:

WRT226*	Special Projects in Fiction (3 credits)	
WRT285	Pima Writers' Workshop (2 credits)	
DAR224*	Advanced Screenwriting (3 credits)	

Complete the Associate of Arts Degree for Transfer in Liberal Arts:

Use the Associate of Arts 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.

Program Identification
Code: **AOALIBRALART**
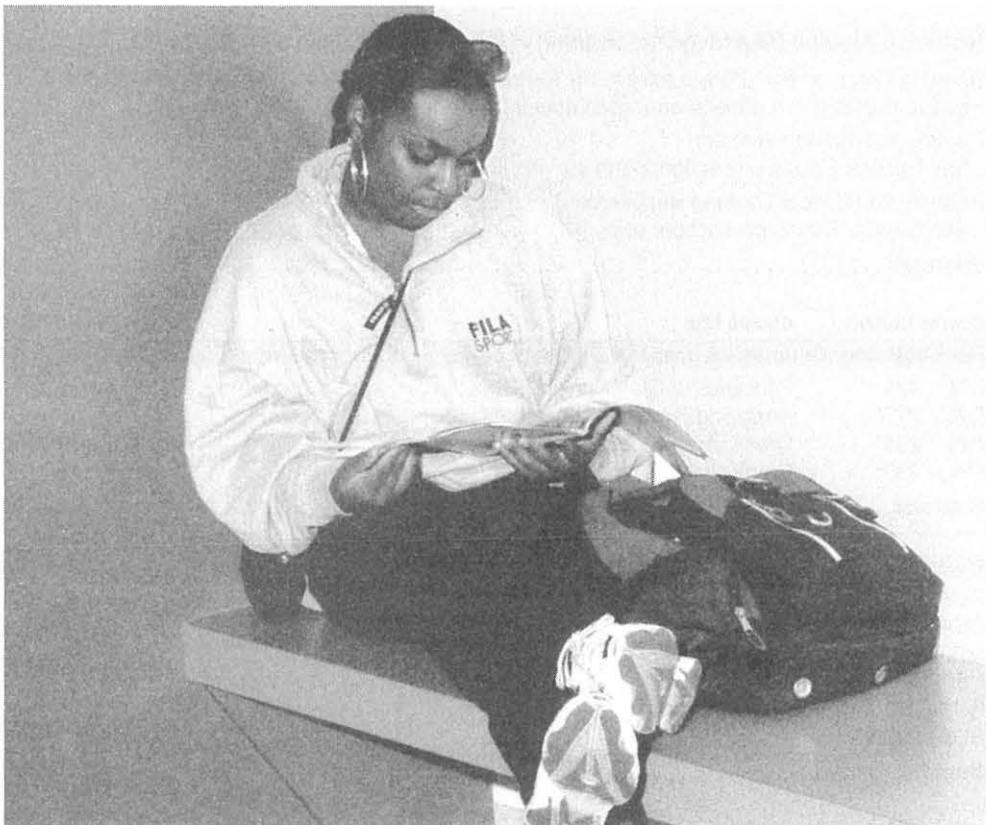
Credit Union

- Basic Credit Union Certificate for Direct Employment
- Advanced Credit Union Certificate for Direct Employment
- Credit Union — Associate of Applied Science Degree for Direct Employment

Basic Credit Union — Certificate for Direct Employment

**Program Identification
Code: CRTCRDUNIN-B**

Pima Community College works jointly with many financial institutions in the Tucson area to offer certificates and Associate of Applied Science degrees. This certificate provides the skills and knowledge for credit union careers and is the foundation for the Advanced Credit Union Certificate.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
FIN 131	Principles of Credit Unions	3
FIN 231	Credit Union Operations	3
FIN 239*	Credit Union Financial Management	3
Subtotal		**9**
Required Support Courses		
BUS 148	Ethics in the Workplace	3
MGT 110	Human Relations in Business and Industry	
or FIN 208	Installment Credit	3
BUS 299*	Co-op Related Class in BUS	1
BUS 299WK*	Co-op Work in BUS	3
Subtotal		**10**
Total credits as displayed		**19**

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

Advanced Credit Union — Certificate for Direct Employment

**Program Identification
Code: CRTCRDUNIN-A**

Pima Community College works jointly with many financial institutions in the Tucson area to offer certificates and Associate of Applied Science degrees. This certificate provides the skills and knowledge for credit union careers and is the foundation for the Credit Union Associate of Applied Science 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.

	Credit Hours
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.		
FIN 131	Principles of Credit Unions	3
FIN 217*	Analyzing Financial Statements	3
FIN 231*	Credit Union Operations	3
FIN 239*	Credit Union Financial Management	3
Subtotal		**12**
Required Support Courses		
BUS 148*	Ethics in the Workplace	3
CSA 101	Computer Fundamentals	3
MGT 110	Human Relations in Business and Industry	
or FIN 208	Installment Credit	3
BUS 299*	Co-op Related Class in BUS	1
BUS 299WK*	Co-op Work in BUS	3
Subtotal		**13**

Financial Counseling Elective 3
  Complete one course from the following list:
  ECN 202*   Macroeconomic Principles
  FIN 111   Personal Investment Portfolios
Total credits as displayed **34**

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

Credit Union — 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
  BUS 148 fulfills 3 credits of this requirement. See General Education section, page 49.

Computer and Information Literacy Requirement . . . . †
  CSA 101 fulfills this requirement.

Subtotal **15**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
FIN 131	Principles of Credit Unions	3
FIN 217	Analyzing Financial Statements	3
FIN 231	Credit Union Operations	3
FIN 239*	Credit Union Financial Management	3
Subtotal		**12**

Required Support Courses		
ACC 101	Financial Accounting	3
BUS 148	Ethics in the Workplace	3
BUS 200	Business Law	
or BUS 220	Legal Environment of Business	3
CSA 101	Computer Fundamentals	3
CSA 182	Microsoft Windows: Current Version	3
MGT 110	Human Relations in Business and Industry	
or FIN 208	Installment Credit	3
MGT 122	Supervision	3
BUS 299*	Co-op Related Class in BUS	1
BUS 299WK*	Co-op Work in BUS	3
MKT 111	Principles of Marketing	3
Subtotal		**28**

Program Identification
Code: **AASCREDUNION**

Pima Community College works jointly with many financial institutions in the Tucson area to offer certificates and Associate of Applied Science degrees. This degree provides the skills and knowledge for credit union careers.

Credit Union — Associate of Applied Science Degree for Direct Employment (continued)

Financial Counseling Elective 3
   Complete one course from the following list:
   ECN 202*   Macroeconomic Principles
   FIN 111   Personal Investment Portfolios
Human Resources Management Elective 3
   Complete one course from the following list:
   MGT 110   Human Relations in Business and Industry**
   MGT 276*   Human Resources

Subtotal 6

Total credits as displayed 61

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

** May be taken only if it is not used as a support course.

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

Culinary Arts

- Culinary Arts Certificate for Direct Employment
- Culinary Arts — Associate of Applied Science Degree 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 is achieved through an interview process by a Culinary Arts faculty member.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
CUL 101	Principles of Restaurant Operations	3
CUL 120*	Stewarding	2
CUL 126	Applied Mathematics for Food Service	1
CUL 130	Hot Foods I	3
CUL 140	Culinary Principles I	2
CUL 150	Garde Manger I	2
CUL 160	Bakery and Pastry Production I	3
CUL 170	Dining Room Operations I	2
CUL 230*	Hot Foods II	3
CUL 240*	Culinary Principles II	2
CUL 250*	Garde Manger II	2
CUL 260*	Bakery and Pastry Production II	2
CUL 270*	Dining Room Operations II	2
Total credits as displayed		**29**

*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.

Subtotal **19-21**

Course Number	Course Title	Credit Hours
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 120	Stewarding	2
CUL 126	Applied Mathematics for Food Service	1
CUL 130	Hot Foods I	3
CUL 140	Culinary Principles I	2
CUL 150	Garde Manger I	2
CUL 160	Bakery and Pastry Production I	3
CUL 170	Dining Room Operations I	2
CUL 210	Menu Planning and Facilities Design	2
CUL 230*	Hot Foods II	3
CUL 240*	Culinary Principles II.	2
CUL 250*	Garde Manger II	2
CUL 260*	Bakery and Pastry Production II.	2
CUL 270*	Dining Room Operations II	2
Subtotal.		**36**

Required Support Courses

Select three courses from the following list to total nine credits:

ACC 100	Practical Accounting Procedures.	3
CUL 180	Food In History	3
CUL 185	Catering Operations I.	2
CUL 199*	Co-op Related Class in CUL	1
CUL 199WK*	Co-op Work in Culinary.	1-6**
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
Subtotal		**5-12**

Total credits as displayed . . . . **60-69§**

* 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 requirement for the Associate of Applied Science Degree is achieved through an interview process by a Culinary Arts faculty member.
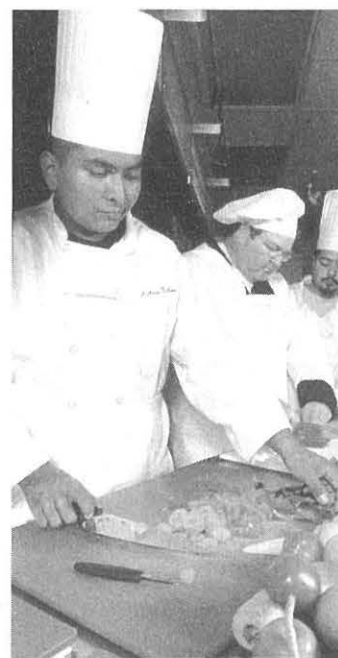
Dental Assisting Education

- 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
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**29**

*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:** Starting in Fall 2002, 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

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.

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.
Subtotal. 3

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
DHE 101/101LB*	Pre-Clinical Dental Hygiene	4
DHE 104/104LB*	Dental And Oral Morphology	1
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
Subtotal. 46		

Required Support Courses

PSY 100A	Psychology I	
or PSY 101*	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
Subtotal 15-16		

Total credits as displayed . . . . 64-65§

* 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 requirements are fulfilled with a minimum of 60 credits.

Dental Laboratory Technology

- Dental Laboratory Technology—Associate of Applied Science Degree for Direct Employment
- Dental Laboratory Technologist Certificate in Complete Dentures for Direct Employment
- Dental Laboratory Technologist Certificate in Dental Ceramics for Direct Employment
- Dental Laboratory Technologist Certificate in Fixed Bridgework for Direct Employment
- Dental Laboratory Technologist Certificate in Partial Dentures 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

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 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.

Subtotal 10-12

Course Number		Course Title	Credit Hours
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
Subtotal			**47**

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.

Dental Laboratory Technology — Associate of Applied Science Degree for Direct Employment (continued)

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
Subtotal			**20**

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 credits.

Dental Laboratory Technologist Certificate in Complete Dentures 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 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
Required Core Courses - A grade of C or better is required for graduation.			
DLT	101/101LB	Dental Morphology**	3
DLT	102*	Nonmetallic Dental Materials	4
DLT	103/103LB*	Complete Dentures	3
DLT	108*	Laboratory Management**	4
Total credits as displayed			**14**

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

** Please note that DLT 101/1 01 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

Dental Laboratory Technologist Certificate in Dental Ceramics 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 the 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
Required Core Courses - A grade of C or better is required for graduation.			
DLT	101/1O1LB	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
Total credits as displayed			**19**

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

**Please note that DLT 101/1 01 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

Dental Laboratory Technologist Certificate in Fixed Bridgework 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
Required Core Courses - A grade of C or better is required for graduation.			
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
Total credits as displayed			**16**

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

**Please note that DLT 101/1 01 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

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.

Dental Laboratory Technologist Certificate in Partial Dentures 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
Required Core Courses - A grade of C or better is required for graduation.			
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
Total credits as displayed			**17**

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

** Please note that DLT 101/1 01 LB and DLT 108 taken as part of any certificate will satisfy the requirement for subsequent certificates.

This program offers accelerated study for students wishing to rapidly enter the dental laboratory industry to expand their skills and employment opportunities.

Digital Arts

- Digital Arts — Certificate for Direct Employment
- Digital Arts — Printing Technology (Offset Printing) 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. The above certificates and degrees are offered.

Program courses and advising are offered on the West Campus.

Digital Arts — Certificate for Direct Employment

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.

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.

Subtotal. 6

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	
or DAR 222*	Advanced Photo Image Editing: Adobe PhotoShop	4
Subtotal. 16		

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

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

Total credits as displayed 32-38

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

Digital Arts · Printing Technology (Offset Printing) — 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.

Subtotal. **6**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
DAR 121*	DeskTop Publishing for Communication Graphics: PageMaker	
or DAR 220*	DeskTop Publishing for Communication Graphics: QuarkXpress	4
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
DAR 221*	Photo Image Editing: Adobe PhotoShop	4
DAR 230	Production Techniques for Print	4

Subtotal. **28**

Total credits as displayed **34**

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

Program Identification
Code: **CRTPRINTING**

This certificate introduces students to the skills required for entry level positions in offset printing or pre-press preparation.
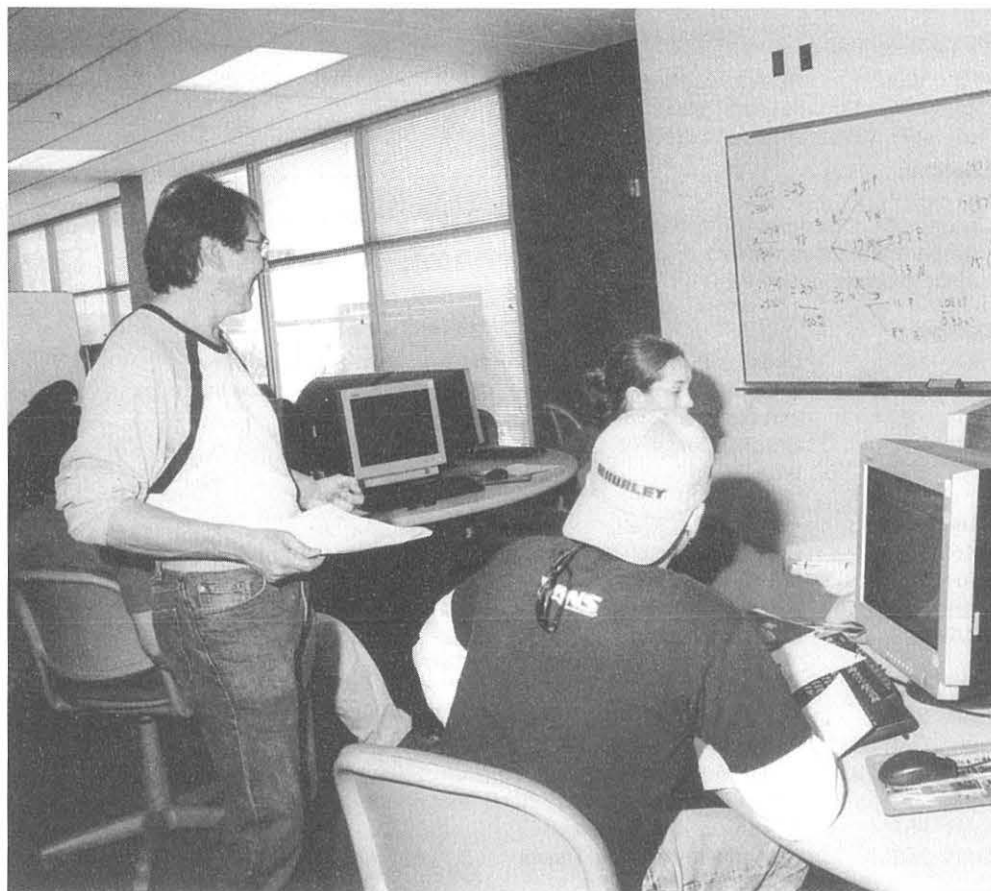
Digital Arts — Associate of Applied Science Degree for Direct Employment

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, DAR103, 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.

Subtotal **15**

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
Subtotal		**34**

Required Support Courses

ART 105	Art Appreciation	
or ART 130	Art and Culture I	
or ART 131	Art and Culture II	3
Subtotal		**3**

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 Affects	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.
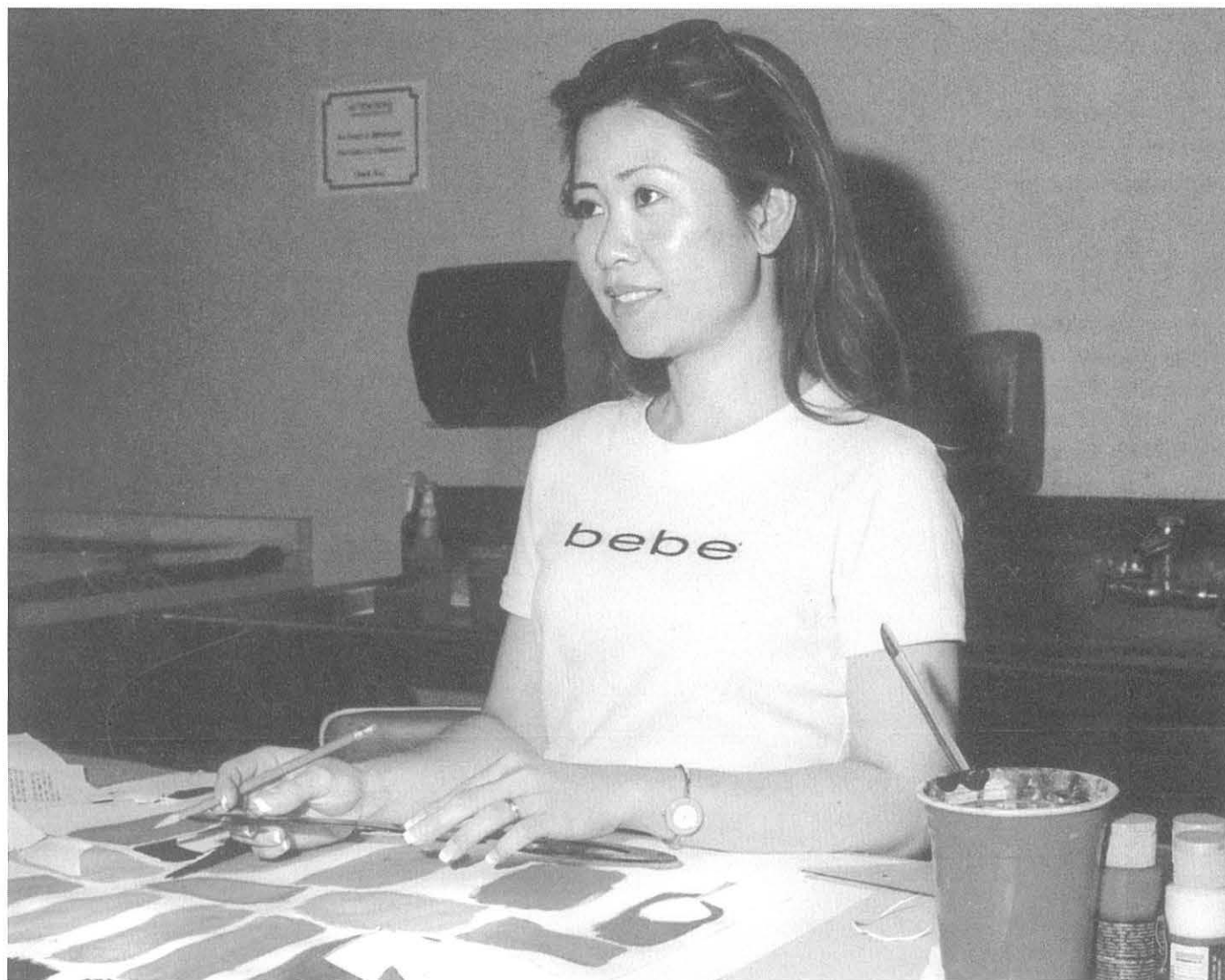
Digital and Film Arts — Certificate for Direct Employment

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.

Subtotal **3**

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
Subtotal		**30**

Required Support Course		
WRT 101	Writing I	3
Subtotal		**3**

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
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
Subtotal		**43**
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 interdisciplinary 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 6
    See General Education section, page 49.

Computer and Information Literacy Requirement 1-3
    See General Education section, page 49.

Subtotal 13-15

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 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 Affects	4
DAR 251*	Computer 3-D Animation	4
Subtotal		**47**

Required Support Courses		
WRT 101*	Writing I	3
WRT 102*	Writing II	3
Subtotal		**6**

Total credits as displayed . . . . 66-68§

* 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 — 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**

Diversity and Harmony Relations

- Certificate for Professional Development

Certificate for Professional Development

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
ANT 202	Sex, Gender, and Culture	
or PSY 216*	Psychology of Gender	3
HIS 274	The Holocaust	3
HUM 260	Intercultural Perspectives	3
Subtotal		**9**
Support Courses for Business, Industrial, Governmental, and Professional Development:		
Additional courses, up to 15 credits, may be added to the core courses based on an organization's goals.		
ANT 203	Ethnic Groups and Cultures	3
PHI 130	Introductory Studies in Ethics and Social Philosophy	3
PSY 250*	Social Psychology	3
SOC 120*	Current Social Problems	3
SOC 201	Minority Relations and Urban Problems	3
Total credits as displayed		**9-24**

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

Program Identification
Code: **CRTDIVERSITY**

This certificate is designed to provide a foundation in cultural diversity for employment training and/or university transfer.

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 Early Childhood Education program offers the above direct employment certificates and degrees:

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

Program Identification
Code: **CRTTEACHAIDE**

This certificate provides the skills and knowledge to become a teacher aide or teacher assistant and the foundation for the Teacher/Director Associate of Applied Science Degree.

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

	Credit Hours
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.		
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/Art for Children	3
ECE 124*	Math/Science for Children	3
ECE 126*	Teaching Techniques	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
EDU 200	Introduction to Education	3
Subtotal		**27**

Course Number	Course Title	Credit Hours
Required Support Course		
WRT 100	Writing Fundamentals	3
Subtotal		**3**

Total credits as displayed	**36**

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

Teacher/Director — 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.

Subtotal **19-21**

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 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/Art for Children.	3
ECE 114	Effective Parenthood.	3
ECE 120*	Supervision and Administration of Early Childhood Programs	3
ECE 124*	Math/Science for Children	3
ECE 126*	Teaching Techniques	3
ECE 128	Preschool and Child Care	3
ECE 130	Day Care Programs	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
EDU 200*	Introduction to Education	3
Subtotal		**45**

Required Support Course

ECE 125   Nutrition for the Young Child. 3

Subtotal **3**

Total credits as displayed . . . . **67-69§**

* 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.

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.

Basic School-Age Child Care Assistant — Certificate for Direct Employment

Program Identification Code: **CRTCHILDCR-B**

The Pima Community College Early Childhood Education program offers a series of highly practical courses that may lead to direct employment in the growing field of school-age childcare.

The school-age childcare 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.

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 126*	Teaching Techniques	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
EDU 108*	Music, Art, and Drama for School-Aged Child Care	3
FSS 242	Games and Activities for the School-Aged Child	3
Total credits as displayed		**18**

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

Advanced School-Age Child Care — Certificate for Direct Employment

Program Identification Code: **CRTCHILDCR-A**

The Pima Community College Early Childhood Education program offers a series of highly practical courses that may lead to direct employment in the growing field of school-age childcare.

The school-age childcare 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.

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.
Subtotal **3**

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 111*	Special Education for Children	3
ECE 126*	Teaching Techniques	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
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
Subtotal		**27**

Required Support Course

SPE	102	Speech Communication	3
Subtotal			**3**

Total credits as displayed **33**

*This course has a prerequisite, co-requisite, or recommendation. See course description section.
† Core or support course(s) fulfill this requirement.

School-Age Child Care — Associate of Applied Science Degree for Direct Employment

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
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	111*	Special Education for Children	3
ECE	120*	Supervision and Administration of Early Childhood Programs	3
ECE	126*	Teaching Techniques	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
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
Subtotal			**30**

Required Support Courses

SPE	102	Speech Communications	3
SSE	146	Child Abuse Intervention and Protection	3
Science Electives		. . . .	8
	Select any AGEC categorical requirement from the biological and physical sciences list		
Subtotal			**14**

Total credits as displayed . . . . **63-65§**

* 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 require-
ments are fulfilled with a minimum of 60 credits.

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.

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
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 in an Early Childhood Program	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 171	Ages and Stages of Young Children: Prenatal Through Infancy	1
CDA 172	Ages and Stages of Young Children: Toddlerhood	1
CDA 173	Ages and Stages for Young Children: The Preschool Years	1
CDA 271	Professionalism in Child Care	1
Subtotal		**12**

Choose one of the following options: 14-17
(Department faculty advisor or counselor approval is recommended in the selection of the program option.)

Infant/Toddler Option

Course Number	Course Title	Credit Hours
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 Principals 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

Course Number	Course Title	Credit Hours
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	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 of Young Children: The Middle Childhood Years	1
CDA	274	Emerging Literacy	1

Family Child Care 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	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	Day Care Programs	3
MGT	124	Small Business Management	3

Total credits as displayed **26-29**

*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.

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
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 in an Early Childhood Program.	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 171	Ages and Stages of Young Children: Prenatal Through Infancy	1
CDA 172	Ages and Stages of Young Children: Toddlerhood	1
CDA 173	Ages and Stages of Young Children: The Preschool Years	1
CDA 271	Professionalism in Child Care.	1
Subtotal. 12		

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
HEC 127	Marriage and the Family	
or SOC 127	Marriage and the Family.	3
SSE 110	Introduction to Social Welfare.	3
Subtotal. 18		

Choose one of the following options: 14-17
  (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 Principals and Theories of Cognitive Development	1

Infant/Toddler Option (continued)

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	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 of Young Children: The Middle Childhood Years	1
CDA	274	Emerging Literacy	1

Family Child Care 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	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

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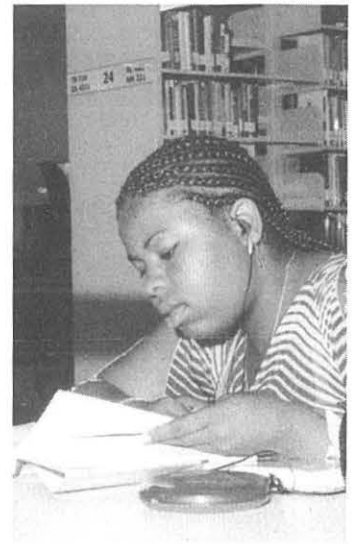
Child Development Associate — Associate of Applied Science Degree for Direct Employment *(continued)*

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	Day Care Programs	3
MGT	124	Small Business Management	3

Total credits as displayed .... **63-66§**

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

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

Education

- Education — Associate of Arts Degree for Transfer
- Teacher Certification Elementary or Secondary — Advanced Certificate for Direct Employment

Students may obtain teacher certifications following two paths at Pima Community College:

Students with a baccalaureate degree may obtain certification by applying for and completing the **Advanced Certificate for Direct Employment – Teacher Certification Elementary or Secondary**.

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.

Elementary Education:

The A.A. in Elementary Education is newly developed and can be seen using the current Online Catalog. This degree 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.

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 and 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 you plan to transfer to for information regarding admission requirements.

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

Basic Core:

EDU 268*	Education Seminar	1
Subtotal		**1**

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
Subtotal		**18**

Methods Courses:

EDU 281*	ESL Methods and Curriculum Development	3
EDU 290*	Internship	8
Subtotal		**11**

Options:

Teacher Certification Elementary:

EDU 276*	Balanced Literacy	3
EDU 277*	Phonics Instruction in a Balanced Literacy Setting	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
Subtotal		**15**

Teacher Certification Secondary:

Only one of the following courses must be completed:

EDU 282*	Science Methods in the Secondary Classroom	3
EDU 283*	Math Methods in the Secondary Classroom	3
EDU 284*	English/Language Arts in the Secondary Classroom	3
EDU 285*	Secondary Teaching Methods	3
Subtotal		**3**

Total credits as displayed **33-45**

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

Program Identification
Code: **CRDTEACHCERT**

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.

Educational Technology

- Introductory Educational Technology Certificate
- Advanced Educational Technology Certificate

The Pima College Community Campus 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 to not only allow teachers to become proficient in the use of educational technology but also to 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.

Introductory Educational Technology Certificate

Program Identification
Code: CRTINTEDUTEC

The Introductory 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
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**7**

* 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 both 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
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**18-20**

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

Emergency Medical Technology

- Emergency Medical Technology Certificate for Direct Employment
- Emergency Medical Technology Intermediate Certificate for Direct Employment
- Emergency Medical Technology - Paramedic — Certificate for Direct Employment
- Emergency Medical Technology - Paramedic — Associate of Applied Science Degree 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.

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.

Due to required changes, see an advisor or the Online Catalog for the most current display of course requirements (www.pima.edu).

Engineering

- Engineering—Associate of General Studies Degree

Engineering—Associate of General Studies Degree

Program Identification Code: **AGSGENRSTUDY**

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 AGEC. Engineering students cannot complete an AGEC due to the number of engineering, math, and science sequences. Completing an AGEC 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.).

Course Number	Course Title	Credit Hours
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/LB*	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

Engineering Major Options (continued)

Civil Engineering:
CHM 152/152LB/IN;
ENG 120IN, 130IN, 210, 218, 230, 232 23

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

Subtotal **3-18**

Electives:

For some majors, it is necessary to complete additional transferable electives in order to complete the minimum of 60 credits for this degree. If you wish to complete the AGEC-S and the Associate of Science degree, complete an Art list course and another Social and Behavioral Science course from the AGEC list. See an Engineering advisor for the selection of these courses. . . . . . .

Subtotal **0-15**

Total credits as displayed **60-64**

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 course 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**

Environmental Technology

- Environmental Technology — Environmental Management Certificate for Direct Employment
- Environmental Technology — Associate of Applied Science Degree for Direct Employment
- Environmental Science — Associate of Arts Degree for Transfer

Environmental Technology is a rapidly expanding occupational field throughout the United States. Increasing populations, combined with more stringent state and federal environmental regulations, have created a rapidly growing need for trained environmental technicians. The Environmental Technology program includes both certificate and degree sequences designed to provide students with the necessary training to successfully compete in this growing field. Training opportunities in the program are being continually expanded as new environmental technology needs emerge. Cooperative education experiences are available to enhance student learning and later employability.

The certificate and degree programs listed below are offered through the academic Environmental Technology program on a credit basis. Those students interested in taking courses on a non-credit basis should contact the Arizona State Environmental Technology Training (ASETT) Center. The Center, which is the U.S. Environmental Protection Agency's designated state wastewater training center located on the East Campus, offers statewide education and training programs in all facets of Environmental Technology.

Students interested in transferring to a four-year institution should check with a Pima Community College counselor or advisor or with the transfer college or university for other pre-baccalaureate Environmental Technology programs.

Environmental Technology — Environmental Management Certificate for Direct Employment

Program Identification
Code: **CRTENVIRMGMT**

This certificate provides skills for entry level positions in the field of Hazardous Material Management and provides the foundation for the Associate of Applied Science Degree in Environmental 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 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.		
ENV 100*	Introduction to Environmental Technology	4
ENV 133*	Water and Wastewater Treatment Systems	6
ENV 152*	Hazardous Materials Management	6
ENV 200*	OSHA 30: Industrial/Workplace Safety	3
or ENV 251*	OSHA 40: Hazardous Materials: Health and Safety	2.5
ENV 297	Experiential Capstone Internship	4
Subtotal		**22.5-25.5**

Required Support Course		
MGT 110	Human Relations in Business and Industry	3
Total credits as displayed		**31.5-34.5**

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

Environmental 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 3
  Certificate course fulfills 3 credits of this requirement

Analysis and Critical Thinking Requirement 3
  Certificate course fulfills 3 credits of this requirement

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 **13-15**

Course Number	Course Title	Credit Hours

Certificate requirements **31.5-32.0**

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

After completion of the Environmental Management Certificate, take an additional 6 credit hours with an ENV prefix at the 200 level. PLUS take an additional 6 credit hours from CHM, BIO, ENG, CONS, EMT or LPT 130. Courses selected must be numbered at 100 level or higher. See Catalog for options. Consult with an ENV faculty for more information.

Subtotal. **12**

Required Support Course

MGT 122   Supervision . . . .
  or   MGT 124   Small Business Management 3

Subtotal. **3**

Total credits as displayed . . . . **60-62§**

* 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.

Program Identification
Code: **AASENVIRTECH**

The Associate of Applied Science Degree provides students with the skills to compete in the growing field of environmental technology. Students can specialize in one or more areas: Environmental Laboratory Analysis, Hazardous Materials Management, or Water and Wastewater Management.

Environmental Science — Associate of Arts Degree for Transfer

Program Identification
Code: AOAENVIROSCI

This degree prepares students to transfer to a university in Environmental Science. The student is educated to understand the interaction of natural systems and society and to address the environmental and natural resources issues facing the nation and the world. Students planning to transfer to the Arizona State University, or Northern Arizona University should see an advisor or counselor for requirements unique to each school.

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 51.

Humanities and Fine Arts 6
  See General Education section, page 51.

Biological and Physical Sciences . . . . †
  BIO 181IN, ENV 104 and 105 fulfill this requirement.

Mathematics . . . . †
  MAT 187 fulfills this requirement.

Social and Behavioral Sciences 3
  ECN 201 fulfills 3 credits of this requirement.
  Complete one additional non-ECN from the course list.
  See General Education section, page 51.

Other Requirements. . . . . †
  CHM 151/151LB/IN and 152/152LB/IN fulfill this requirement.

Special Requirements
  ENV 105 fulfills the I requirement.

The C and G requirement should be fulfilled by courses in the above categories.
  See General Education section, page 51.

Subtotal . . . . **15 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
ENV 100*	Introduction to Environmental Technology	4
ENV 104*	Humanity and the Environment Discovery Laboratory	1
ENV 105	Humanity and the Environment	3
ENV 205*	Environmental Law for Non-lawyers.	3
ENV 208*	Laboratory Analysis	3
ENV 251*	OSHA 40: Hazardous Materials: Health and Safety	2.5
ENV 258*	Advanced Laboratory Analysis	3
Subtotal		**19.5**

Required Support Courses		
BIO 181IN*	General Biology I (Majors)	4
CHM 151/151LB/ 151IN*	General Chemistry I	5
CHM 152/152LB/ 152IN*	General Chemistry II.	5
CHM 235/235LB/ 235IN*	General Organic Chemistry I	5
ECN 201*	Microeconomic Principles	3
MAT 167*	Introductory Statistics.	3
MAT 187*	Precalculus.	5
Subtotal.		**30**

Total credits as displayed . . . . **64.5§**

*   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.

Fire Science

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

Fire Science — Certificate for Direct Employment

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**17**

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

Program Identification
Code: **CRTFIRESCIEN**

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.

This certificate provides the foundation for the Associate of Applied Science Degree in Fire Science.

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.
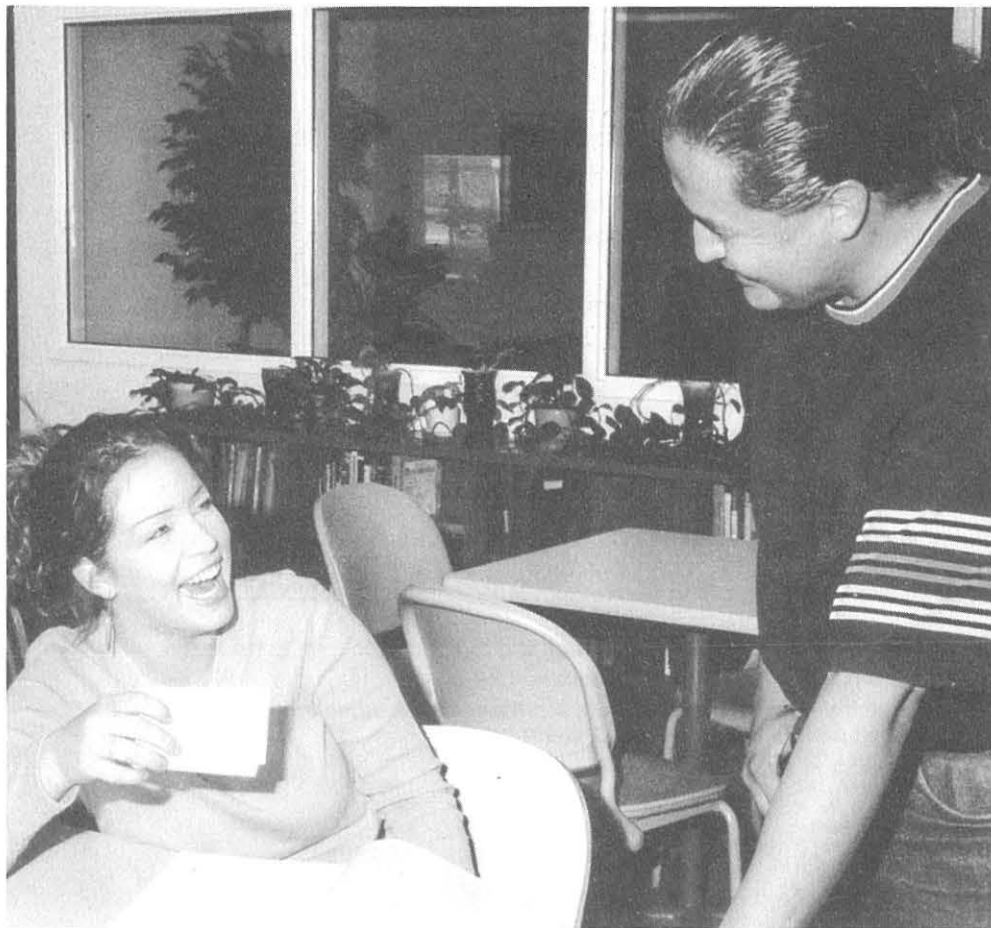
Fire Science — Associate of Applied Science Degree for Direct Employment

Program Identification
Code: **AASFIRESCIEN**

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.

This program transfers to ASU-East and is offered in Tucson as a Bachelor of Applied Science Degree in Fire Service Management.

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.

Subtotal. 9

Course Number	Course Title	Credit Hours
Completion of a firefighting academy program or program prerequisites (see narrative above). 21-23		

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

Course Number	Course Title	Credit Hours
FSC 152	Fundamentals of Fire Prevention	3
FSC 153	Hazardous Materials	3
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
Subtotal. 28		

Required Support Courses

Course Number	Course Title	Credit Hours
STU 230	Dynamics of Leadership.	3
WRT 101*	Writing I.	3
WRT 102*	Writing II	3
Subtotal. 9		

Total credits . . . . 67-69§

*   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.

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 a student at 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).
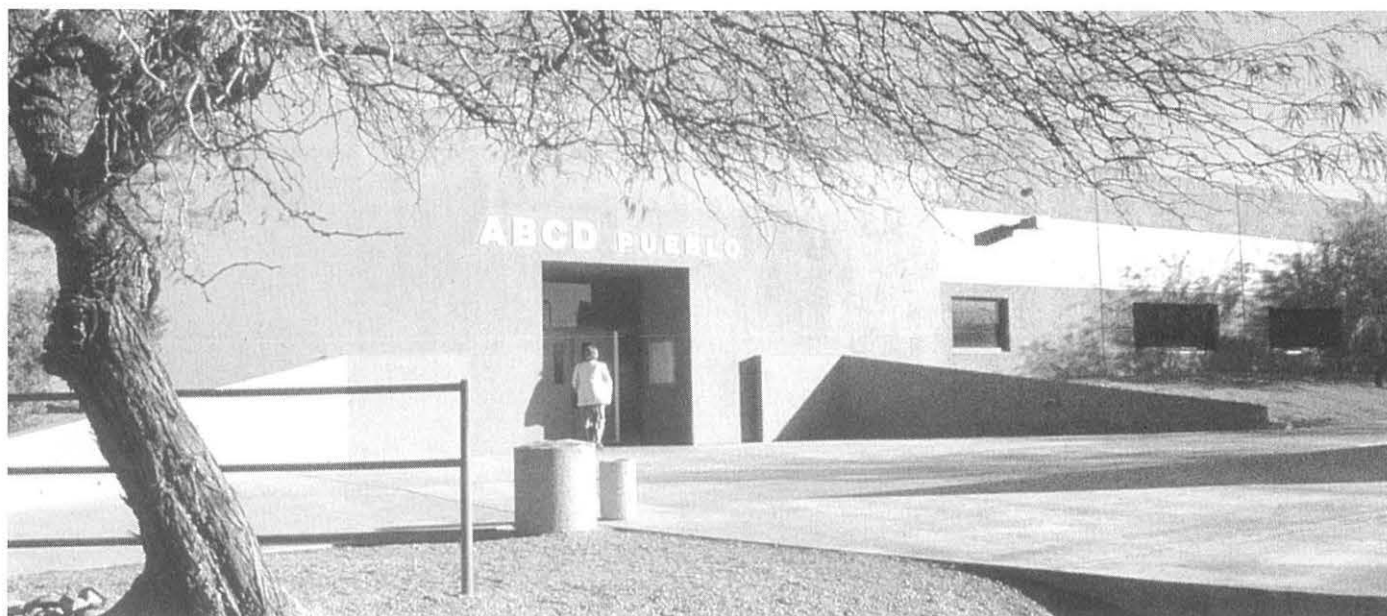
Fitness and Sport Sciences — Coaching Certificate for Direct Employment

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.

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
FSS	199*	Co-op Related Class in FSS	1
FSS	199WK*	Co-op Related Work in FSS	1
FSS	250	Sport First Aid	
or	HED 140	First Aid and Cardiopulmonary Resuscitation	1
FSS	285*	Principles of Athletic Coaching	1-3
Subtotal			**4-6**

Required Support Courses			
Select at least one course but no more than two from the following list:			
FSS	213*	Professional Activities: Basketball	2
FSS	218*	Professional Activities: Weight Training	1
FSS	225*	Professional Activities: Soccer	2
FSS	227*	Professional Activities: Softball	1
FSS	230*	Professional Activities: Tennis	2
FSS	231*	Professional Activities: Track and Field	2
FSS	232*	Professional Activities: Volleyball	2
Subtotal			**1-4**

Elective Courses			
Select a minimum of 8-13 credits from the following list:			
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
FSN	154	Nutrition	
or	FSS 241*	Nutrition for Exercise and Sport	3
FSS	238*	Introduction to Sports Injury Management	2
FSS	271*	Adolescent Sports Psychology	3
FSS	272*	Coaching Techniques and Practices	3
FSS	273*	Sport Physiology	3
FSS	289*	Sports Administration	2
Subtotal			**8-13**

Total credits as displayed			**13-23**

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

Fitness Professional Certificate

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
FSS 218	Professional Activities: Weight Training	1
FSS 236*	Motivational Techniques for Personal Trainers and Coaches	2
FSS 238*	Introduction to Sports Injury Management	2
FSS 241*	Nutrition for Exercise and Sport	3
FSS 276*	Individualized Exercise for Wellness	2
FSS 277*	Personal Trainer	3
FSS 278*	Fitness Professional Practices	2
FSS 299*	Co-op Related Class in FSS	1
FSS 299WK*	Co-op Work in FSS	1-3
HED 136/136LB	Introduction to Health Sciences	3
Subtotal		**20-22**

Course Number	Course Title	Credit Hours
Required Support Courses		
Select 3 to 5 credits from the following list:		
BIO 160IN	Introduction to Human Anatomy and Physiology	4
BIO 201IN*	Human Anatomy and Physiology I	4
BUS 100	Introduction to Business	3
BUS 200	Business Law	3
CSA 101	Computer Fundamentals	3
FSS 208*	Professional Activities: Aerobics	1
FSS 213*	Professional Activities: Basketball	2
FSS 223*	Professional Activities: Racquetball	1
FSS 230*	Professional Activities: Tennis	2
FSS 232*	Professional Activities: Volleyball	2
FSS 250	Sport First Aid	
or HED 140	First Aid and Cardiopulmonary Resuscitation	1
FSS 270*	Principles of Strength and Conditioning	1
FSS 280*	Lifestyle and Weight Management Consultant	3
Subtotal		**3-5**

Total credits as displayed **23-27**

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

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.

Physical Education — Emphasis for Transfer

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 AGEC-A and the Associate of Arts in Liberal Arts (Program Identification Code: AOALIBRALART). Some of the courses in the list below will double-dip into the AGEC-A.

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.

Program Identification Code: **AOALIBRALART**

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

UA requires completion of a second language at the second-semester level. ASU requires completion of a language at the fourth-semester level. Complete two semesters of a second language. If you transfer to ASU, two more semesters will be required.

Complete two courses from one the following sequences:

CHI 101, 102; FRE 101, 102; GER 101, 102; GRK 101, 102; ITA 101, 102; JPN 101, 102; RUS 101, 102; SLG 101, 102; SPA 101, 102

Activity Courses

Select at least 3 courses for 5 credit hours from the following:

FSS 208	Professional Activities: Aerobics
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 (Program Identification Code: AOALIBRALART). Some of the courses in the list below will double-dip into the AGEC-A.

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.
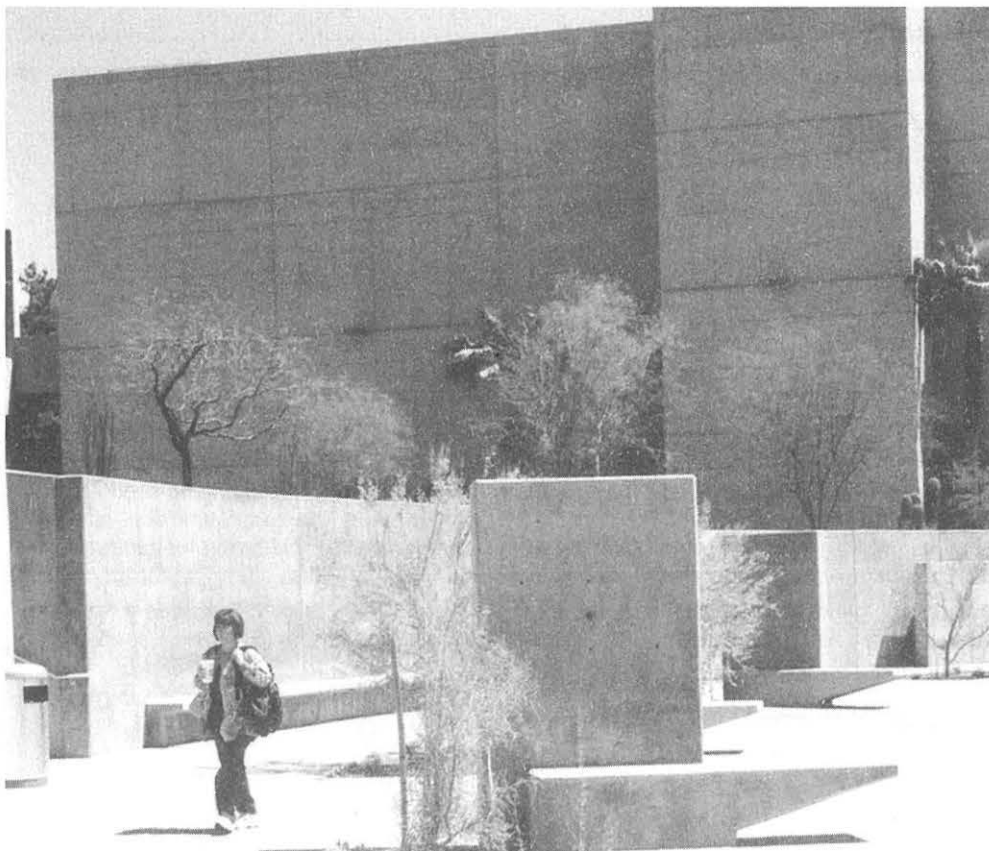
Program Identification
Code: **AOALIBRALART**

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 satisfied the academic requirements for certification by the International Association for Identification as a Crime Scene Technician/ Analyst, Levels I-III.

Program Prerequisites:

AJS 101 and AJS 201

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
CHM 128/ 128LB/IN*	Forensic Chemistry	4
CSM 100* or	Introduction to Photographic Equipment and Procedures Challenge Examination	2
CSM 101*	Criminalistics	1
CSM 102* or	Crime Scene Photography Challenge Examination	1
CSM 103*	Latent Processing	.5
CSM 104*	Fingerprint Classification	3
CSM 105*	Blood Pattern Documentation	.5
CSM 106*	Ballistics	.5
CMS 107*	Courtroom Testimony and Report Writing	1
Subtotal		**13.5**
Required Support Courses - A grade of C or better is required for graduation.		
AJS 101	Introduction to Administration of Justice Systems	3
AJS 124 or LEN 105	Ethics and the Administration of Justice Ethics and Leadership in Law Enforcement	3
AJS 201	Rules of Evidence	3
Subtotal		**9**
Total credits as displayed		**22.5**

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

General Studies

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.

Program Identification
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

- Histologic Technician — Certificate for Direct Employment
- Histologic Technician — Associate of Applied Science Degree for Direct Employment

The Pima College West Campus offers a Certificate for Direct Employment and an Associates of Applied Science Degree for Histologic Technicians. The curricula are based on the requirements of the National Accrediting Agency for Clinical Laboratory Scientists (NAACLS) 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 Histologic Technician 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

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Histologic Technician — Certificate for Direct Employment

Program Identification Code: **CRTHISTOTECH**

These courses provide theoretical and practical preparation for its program graduates. Graduates of this 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.

Subtotal. 6

Course Number		Course Title	Credit Hours
Required Core Course - A grade of C or better is required for graduation.			
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 I.	3
HTP	299WK*	Co-op Work in HTP II	3
HTP	299WK*	Co-op Work in HTP III	3
HTP	299WK*	Co-op Work in HTP IV.	3
Subtotal.			**25**

Total credits as displayed. 31

Histologic Technician — 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.

Subtotal. 9

Course Number		Course Title	Credit Hours
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 I.	3
HTP	299WK*	Co-op Work in HTP II	3
HTP	299WK*	Co-op Work in HTP III.	3
HTP	299WK*	Co-op Work in HTP IV.	3
Subtotal. 31			

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
Subtotal. 23			

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 Community 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 51.

Humanities and Fine Arts 6
  See General Education section, page 51.

Biological and Physical Sciences 8
  See General Education section, page 51.

Mathematics 3
  See General Education section, page 51.

Social and Behavioral Sciences 3
  ECN 200 fulfills 3 credits of this requirement.
  See General Education section, page 51. for a non-ECN course.

Other Requirements. . . . . †
  Second language support courses fulfill this requirement.

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

Subtotal . . . . **26 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
HRM 100	Introduction to Hospitality Industry.	3
HRM 101	Front Office Procedures	3
HRM 150	Executive Housekeeping I	3
Subtotal.		**9**

Required Support Courses

Course	Title	Credits
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.

Subtotal. 26

**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

(See also Recreation)

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
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
Total credits as displayed		**18**

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

Program Identification Code: CRTTRVLINDUS

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.

*See also **Recreation and Tourism Management-Associate of Arts Degree for Transfer** under Recreation in this catalog.*

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.

Subtotal. 18

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
Subtotal. 18			

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)	
Subtotal 11-12			

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, Sales and Management	3
TVL	214	Destination Development	3
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.

Human Resources

- Human Resources - Certificate for Direct Employment

Human Resources — Certificate for Direct Employment

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation			
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
Total credits as displayed			**18**

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 6
  See General Education section, page 49.

Computer and Information Literacy Requirement . . . . †
  CAD 101 fulfills this requirement.

Subtotal 18

Course Number	Course Title	Credit Hours
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 & Furniture from the Egyptian Period to 1900. . .	3
DES 213	History of Interior Architecture & 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
Subtotal		**40**
Required Support Courses		
CAD 101	Computer Aided Drafting Fundamentals	4
CAD 158*	Interior Design/Drafting	3
Subtotal		**7**

Total credits as displayed . . . . 65§

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

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

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

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 51.

Humanities and Fine Arts 0-3
  ART 110 and DES 213 fulfill 3 credits of this requirement.
  Complete at least one course from the Humanities/Historical Perspective list. See General Education section, page 51.

Biological and Physical Sciences 8
  See General Education section, page 51.

Mathematics 3
  See General Education section, page 51.

Social and Behavioral Sciences 6-9
  See General Education section, page 51.

Other Requirements 0-6
  See General Education section, page 51.

Special Requirements
  I, C, and G requirements should be fulfilled by courses in the above categories.

Subtotal . . . . 29¥

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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 & Furniture From the Egyptian Period to 1900	3
DES 213	History of Interior Architecture & Furniture From 1900 to the Present	3
DES 220	Interior Methods and Materials	3
DES 222*	Graphic Communication II	3
DES 255	Space Planning II	3
Subtotal		**27**
Required Support Courses		
ART 110*	Drawing I	3
BUS 200	Business Law	3
CAD 101	Computer Aided Drafting Fundamentals	4
CAD 158*	Interior Design/Drafting	3
Subtotal		**13**

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

* 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.

Program Identification Code: AOADESIGN

The Associate of Arts Degree for Transfer is designed to articulate with the Northern Arizona University 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 toward the Northern Arizona University Bachelor of Science Degree in Interior Design. The Associate of Arts Degree from Pima Community College, by containing the AGEC-A, also 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 Management (BSM) with a specialization in international business.

This program area is designed to meet the needs of business and industry by providing education and training with the following emphases: (1) preparing the student for employment in an international setting, (2) upgrading the skills of students currently employed in a company with international operations and (3) preparing the student for a foreign assignment.

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
  Foreign language will fulfill half of this requirement. See General Education section, page 49.
Computer and Information Literacy Requirement . . . . †
  CSA 101 fulfills this requirement.
Subtotal 15

Course Number	Course Title			Credit Hours
Required Core Courses - A grade of C or better is required for graduation.				
BUS 210	International Business			3
FOR/LANG	Foreign Language Electives			8-10
	Complete one of the following sequences:	FRE 101, 102* ITA 101, 102* RUS 101, 102*	GER 101, 102* JPN 101, 102* SPA 101, 102*	
IBS 120	Cultural Environment of International Business			3
IBS 135	The International Career			1
IBS 136	Introduction to Global Economy			3
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
Subtotal 29-31				

		Required Support Courses		
ACC 101	Financial Accounting			3
ACC 102*	Managerial Accounting			3
BUS 151*	Mathematics of Business			3
BUS 200	Business Law			3
CSA 101	Computer Fundamentals			3
MGT 110	Human Relations in Business and Industry			3
Subtotal 24				

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

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

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

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

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.

Subtotal 19-21

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
ITP	105*	Fingerspelling and Numbers	2
ITP	200*	Introduction to the Deaf Community.	3
ITP	203*	Linguistics of American Sign Language	3
ITP	205*	Advanced Fingerspelling and Numbers	2
ITP	210*	Introduction to Interpreting.	3
ITP	215*	Classifiers, Mimetic Description and ASL Literature	3
ITP	220*	Interpreting I	4
ITP	250*	Interpreting II	4
ITP	268*	Etymology.	2
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
Subtotal. 40			

Required Support Courses			
ANT	215	The Nature of Language.	3
STU	130	Stress Management	3
SPE	102	Speech Communication.	3
Subtotal. 9			

Total credits as displayed . . . . 68-69§

*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.

**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.

Journalism and Media Publishing (Formerly Media Communications)

- Print and Electronic Journalism — Associate of Applied Science Degree for Direct Employment
- Journalism — Associate of Arts Degree for Transfer

Print and Electronic Journalism — Associate of Applied Science Degree for Direct Employment

Program Identification
Code: **AASPRNTMEDIA**

This degree is designed to prepare students for journalism and media publishing in a new era of media convergence. Learning to work with continuous deadlines and to write and communicate across numerous platforms will be emphasized. The field includes jobs as reporters, freelance writers, small publication editors, copy editors, visual journalists, print design specialists, and on-line reporters, writers, and designers for print, electronic and Web publications. Additional opportunities exist in public relations, advertising and media business operations. Cooperative Education opportunities are available in small publications, daily and weekly newspapers, on-line and specialty publications, and radio and television stations. Students must complete at least six credit hours of journalism (JRN) courses before being placed at work sites. Students will also work on the Aztec Press, a student-produced newspaper, and may help produce the on-line edition of the Aztec Press.

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 . . . . †
  JRN 101 and SPE 120 fulfill this requirement.

Analysis and Critical Thinking Requirement 6
  See General Education section, page 49.

Humanities and Social Science Requirement 3
  JRN 102 fulfills 3 credits if this requirement. See General Education section, page 49.

Computer and Information Literacy Requirement . . . . †
  CSA 100 fulfills this requirement.

Subtotal 9

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
JRN 101	Introduction to Reporting and Media Writing	3
JRN 102	Survey of Media Communications	3
JRN 185*	Newspaper Publishing	3
JRN 186*	Writing for the Web	3
JRN 187*	Introduction to Electronic Publishing in Journalism/Media	3
JRN 188	DeskTop Publishing for Journalism	3
JRN 199*	Co-op Related Class in JRN	1
JRN 199WK*	Co-op Work in JRN	2
JRN 230* or JRN 235*	Advanced Reporting Writing/Reporting for Broadcast Journalism	3
JRN 240*	Editing, Layout, and Design	3
JRN 280*	Photojournalism	3
Subtotal		**30**
Required Support Courses		
CSA 100	Computer Literacy	1
SPE 120	Business and Professional Communication	3
Subtotal		**4**

Choose one of the following options: 21
  Select 21 credits from the following list with the approval of the department chair or faculty advisor

Journalism and Media Publishing

JRN 110*	Introduction to Public Relations	3
JRN 180	Newspaper Business Procedures	2
JRN 235*	Writing/Reporting for Broadcast Journalism	3
JRN 260*	Magazine and Feature Writing	3
JRN 270*	Media Advertising and Public Relations	3
JRN 285*	Advanced Newspaper Publishing	3
JRN 196/296*	Journalism Independent Projects	1-4
JRN 299*	Co-op Related Class in JRN	1
JRN 299WK*	Co-op Work in JRN	2
WRT 162	Literary Magazine Workshop	3
WRT 217*	Creative Nonfiction	3

Online Journalism

Select 21 credits from the following list with the approval of the department chair or faculty advisor.

DAR	122*	DeskTop Graphics: Adobe Illustrator	4
DAR	221*	Photo Image Editing: Adobe PhotoShop	4
DAR	256*	Web Design	4
JRN	285*	Advanced Newspaper Publishing	3
JRN	196/296*	Journalism Independent Projects	1-4
JRN	287*	Advanced Electronic Publishing in Journalism/Media	3
JRN	299*	Co-op Related Class in JRN	1
JRN	299WK*	Co-op Work in JRN	2

Visual Journalism

Select 21 credits from the following list with the approval of the department chair or faculty advisor.

ART	140*	Photography I	3
ART	141*	Photography II	3
ART	230	History of Photography	3
DAR	120	Applied Computer Graphics	4
DAR	122*	Desktop Graphics: Adobe Illustrator	4
DAR	125*	Beginning Video Production	3
DAR	220*	Desktop Publishing for Communication Graphics: QuarkXpress	4
DAR	221	Photo Image Editing: Adobe PhotoShop	4
DAR	222*	Advanced Photo Image Editing: Adobe PhotoShop	4
JRN	189	Newspaper Graphics	2
JRN	196/296*	Journalism Independent Projects	1-4
JRN	235*	Writing/Reporting for Broadcast Journalism	3
JRN	281*	Applied Photojournalism	2
JRN	287*	Advanced Electronic Publishing in Journalism/Media	3
JRN	299*	Co-op Related Class in JRN	1
JRN	299WK*	Co-op Work in JRN	2

Total credits as displayed . . . . 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.

Helpful qualifications for employment in this field are curiosity about people and events, a working knowledge of English grammar, punctuation and style, analytical and critical thinking, strong writing, interviewing, editing and communication skills, accurate reporting, a commitment to journalistic ethics and hands-on experience in the craft of journalism. For students primarily interested in visual journalism, helpful qualifications include print and web publication design and layout, computer graphics applications, art, still digital photography and videography.

Students may choose one of the following options: Journalism and Media Publishing, which focuses on print media publication; on-line Journalism, in which writing, reporting, and publishing will be on the Web; or Visual Journalism, which focuses on the use of images, still and video, and graphic design and layout for print, online and broadcast media.

Journalism — Associate of Arts Degree for Transfer

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 dark room 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 College offers the following languages:

- Apache
- French
- German
- 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 College should complete the AGEC 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.

Program Identification
Code: **AOALIBRALART**

Legal Assistant (Paralegal)

- Legal Assistant (Paralegal)—Associate of Applied Science Degree for Direct Employment
- Legal Assistant (Paralegal) 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 legal assistant and paralegal are used interchangeably. A legal assistant or paralegal 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.

Legal Assistants (Paralegals) may not give legal advice or otherwise engage in the unauthorized practice of law.

Legal assistant 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.

Legal assistants 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.

Legal Assistant Program Objectives

To prepare students with employment entry level practical skills and knowledge for the legal assistant field, the program offers a series of courses which gives students the ability to:

1. Describe the role and responsibilities of a legal assistant 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 legal assistant.

4. Demonstrate the legal assistant's role during litigation and trial and the ability to prepare motions, pleading, instruments of discovery, notetaking, 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:

There are two programs available from which a student may choose one. The advanced certificate carries an admissions requirement of a Baccalaureate or Associate of Arts 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 103, 104, 106, 202, and 211.

LAS advisors are available on the Downtown Campus only.

Legal Assistant (Paralegal)—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 list at the end of this program display.

Humanities and Social Science Requirement. 3
  POS 110 or 220 fulfills 3 credits of this requirement.
  See General Education list at the end of this program display.

Computer and Information Literacy Requirement. . . . . †
  CSA 101 fulfills this requirement.

Subtotal. 9

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
LAS 101	Introduction to Legal Assistant Careers	3
LAS 102*	Civil Litigation Procedures I	3
LAS 103*	Legal Research	3
LAS 104*	Legal Assistant Ethics	3
LAS 106*	Civil and Criminal Evidence	3
LAS 202*	Civil Litigation Procedures II.	3
LAS 211*	Legal Writing.	3
Subtotal. 21		

LAS ELEC LAS Specialty Area Electives
  Complete 15-16 credits 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 201*	Consumer Law Procedures	3
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 213*	Computer Assisted Legal Research	3
LAS 215*	Corporate Law Procedures	3
LAS 217*	Real Estate Legal Procedures	3
LAS 290*	Legal Assistant 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 15-16		

continued next page

Program Identification
Code: AASLEGALASST

A legal assistant or paralegal is a persona, 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 103, 104, 106, 202, and 211.

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 Legal Assistant (Paralegal) 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.

Legal Assistant (Paralegal) — Associate of Applied Science Degree for Direct Employment *(continued)*

Required Support Courses

ACC	100	Practical Accounting Procedures	
or	ACC 101	Financial Accounting	3
BUS	220	Legal Environment of Business	3
CSA	101	Computer Fundamentals	3
POS	110	National Government and Politics	
or	POS 220	National and State Constitutions	3
SPE	110	Public Speaking	3
WRT	101*	Writing I	
or	WRT 107*	Writing I for Non-Native Speakers of English	3
WRT	102*	Writing II	
or	WRT 108*	Writing II for Non-Native Speakers of English	3

Subtotal. 21

Total credits as displayed . . . . 66-67§

General Education List

Analysis and Critical Thinking Requirement. . . . . 6 credits
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/IN, 102/102LB, BIO 100IN or higher, (except BIO 198, 297, 298), CHM 100 or higher (except CHM 296, 198, 297), GEO 101, 102, GLG 101IN, GLG 102IN, PHY 115/115LB, PHY 121/121LB/IN, 122/122LB/IN, 210/210LB/IN, 216/216LB/IN, 221/221LB/IN

Critical Thinking Category
PHI 120

Humanities and Social Science Requirement. . . . . 6 credits
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 AGEC 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.

* 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.

Legal Assistant (Paralegal) Advanced 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 . . . . †
  WRT 101 or 107 fulfills this requirement.

Analysis and Critical Thinking Requirement 3
  See General Education list at the end of this program display.

Subtotal. 3

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
LAS 101	Introduction to Legal Assistant Careers	3
LAS 102*	Civil Litigation Procedures I	3
LAS 103*	Legal Research	3
LAS 104*	Legal Assistant Ethics	3
LAS 106*	Civil and Criminal Evidence	3
LAS 202*	Civil Litigation Procedures II	3
LAS 211*	Legal Writing	3
Subtotal		**21**

LAS ELECT   LAS Specialty Area Electives
  Complete 15-16 credits 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.)

Course Number	Course Title	Credit Hours
LAS 201*	Consumer Law Procedures	3
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 213*	Computer Assisted Legal Research	3
LAS 215*	Corporate Law Procedures	3
LAS 217*	Real Estate Procedures	3
LAS 290*	Legal Assistant 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 15-16

Required Support Course

Course Number	Course Title	Credit Hours
WRT 101*	Writing I	
or WRT 107*	Writing I for Non-Native Speakers of English	3
Subtotal		**3**

Total credits as displayed 42-43

Program Identification
Code: **CRDLEGALASST**

A legal assistant or paralegal 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 advanced certificate carries an admissions requirement of a Baccalaureate or Associate of Arts Degree for Transfer from an accredited post-secondary institution.

Legal Assistant (Paralegal) Advanced Certificate for Direct Employment *(continued)*

General Education List

Analysis and Critical Thinking Requirement . . . . **3 credits**

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 101/101LBIN, 102/102LB, BIO 100IN or higher (except 198, 297, 298), CHM 100 or higher (except 196, 198, 297), GEO 101, 102, GLG 101IN, 102IN, PHY 115/115LB, PHY 121/121LB/IN, PHY 122/122LB/IN, 210/210LB/IN, 216/216LB/IN, 221/221LB/IN

Critical Thinking Category

PHI 120

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

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

Liberal Arts

See Associate of Arts Degree for Transfer in Liberal Arts
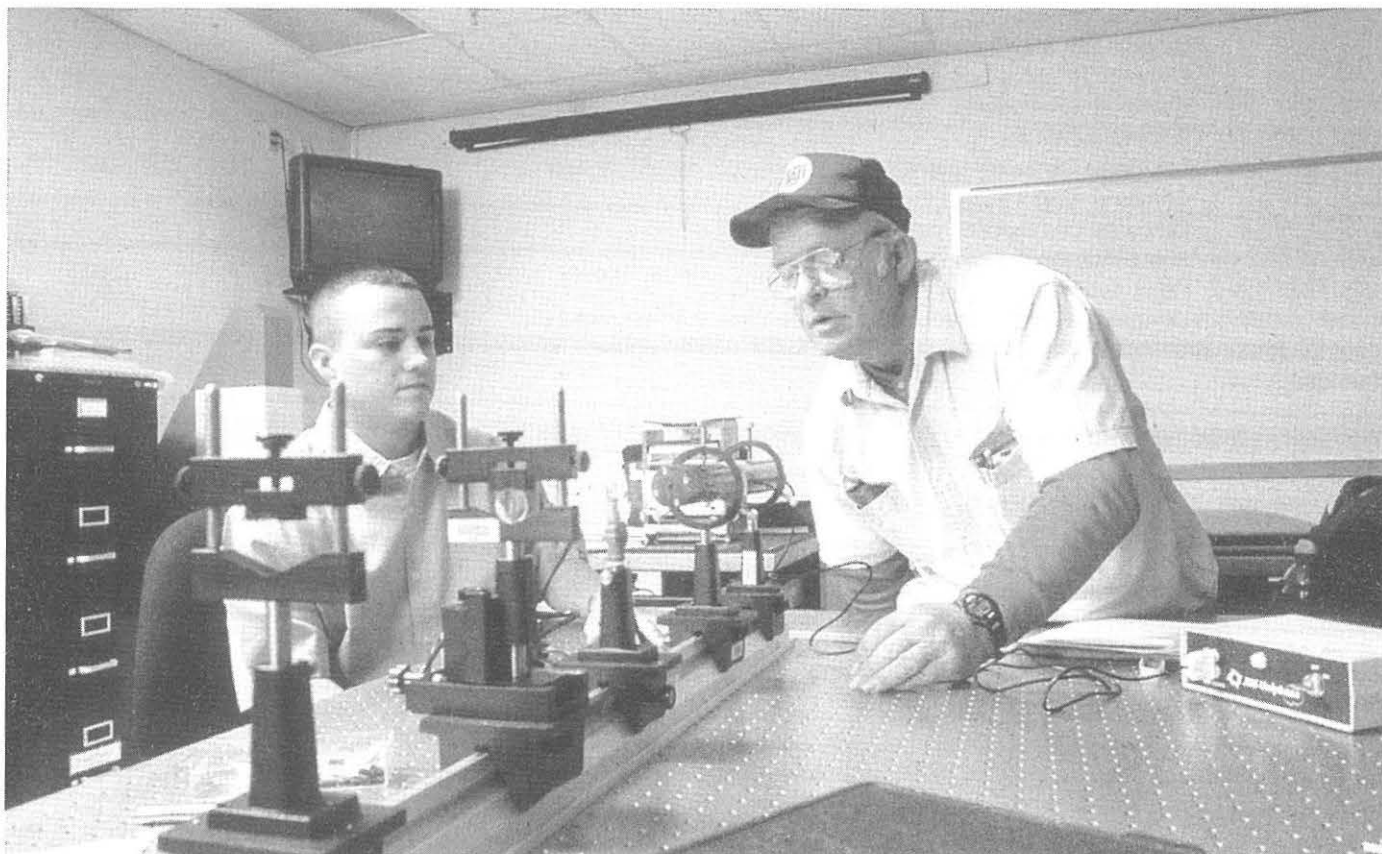
Machine Tool Technology

Certificates for Direct Employment:
- Machine Operator
- Manual Machinist
- Mechanical Inspector
- Computer Numerical Control (CNC)
- Computer Numerical Control (CNC) Programmer

Degrees:
- 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.

Six programs are available: Manual Machinist, Computer Numerical Control (CNC) Machinist, Machine Operator, Mechanical Inspector, and CNC Programmer certificates, and the Associate of Applied Science Degree in Machine Tool Technology with five options to choose from: Manual Machinist, CNC Machinist, Machine Operator, Mechanical Inspector, and 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

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MAC 100	Introduction to Machine Tool	3
MAC 103*	Applied Shop Mathematics	3
MAC 110*	Machine Shop I	4
MAC 120*	Machine Shop II	4
Subtotal		**14**
Required Support Courses		
GTM 105*	Applied Technical Mathematics	3
Subtotal		**3**
Total credits as displayed		**17**

* 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:
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.

Machine Tool Technology — Certificate: Manual Machinist Concentration

Major Code:
MAC

Program Code:
CRTMACHNTOOL

Concentration Code:
MACM

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.

Entry requirement: MAC 100 or a score of 80% or better on a machine tool assessment test.

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.
Subtotal. 3

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MAC 103*	Applied Shop Mathematics	3
MAC 110*	Machine Shop I	4
MAC 120*	Machine Shop II	4
MAC 210*	Jig and Fixture Design	4
MAC 275	Applied Metallurgy	4
Subtotal		**19**
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
Subtotal		**14**
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.

Machine Tool Technology — Certificate: Mechanical Inspector Concentration

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.

Entry requirement: MAC 100 or a score of 80% or better on a machine tool assessment test.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MAC 103*	Applied Shop Mathematics	3
MAC 205*	Mechanical Inspection	4
MAC 275	Applied Metallurgy	4
Subtotal		**11**
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
Subtotal		**14**
Total credits as displayed		**25**

*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: Computer Numerical Control (CNC) Machinist Concentration

Entrance requirement: Two years minimum manual machinist or CNC operator experience required, or MAC 120.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MAC 103*	Applied Shop Mathematics	3
MAC 205*	Mechanical Inspection	4
MAC 250*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 255*	Computer Numerical Control (CNC) Mill Programming II	4
MAC 260*	Computer Numerical Control (CNC) III:Lathe	4
Subtotal		**19**
Required Support Courses		
CAD 101	Computer Aided Drafting Fundamentals	4
CAD 172*	Geometric Dimensioning and Tolerancing	3
GTM 105*	Applied Technical Mathematics	3
Subtotal		**10**
Total credits as displayed		**29**

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

Major Code:
MAC

Program Code:
CRTMACHNTOOL

Concentration Code:
MACC

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.

Machine Tool Technology — Certificate: Computer Numerical Control (CNC) Programmer Concentration

Entry requirement: MAC 100 or a score of 80% or better on a machine tool assessment test.

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.		
Subtotal		**3**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MAC 103*	Applied Shop Mathematics	3
MAC 250*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 255*	Computer Numerical Control (CNC) Mill Programming II	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
MAC 260*	Computer Numerical Control (CNC) III: Lathe	4
Subtotal		**27**

continued next page

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.

Machine Tool Technology — Certificate: Computer Numerical Control (CNC) Programmer Concentration *(continued)*

Required Support Courses

CAD	172*	Geometric Dimensioning and Tolerancing	3
GTM	105*	Applied Technical Mathematics	3
Subtotal			**6**

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.

Machine Tool Technology — Associate of Applied Science Degree for Direct Employment

Major Code:
MAC

Program Code:
AASMACHNTOOL

Concentration Code:
see options below

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.

Entry requirement: MAC 100 or a score of 80% or better on a machine tool assessment test.

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.

Subtotal **12**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MAC 103*	Applied Shop Mathematics	3
MAC 110*	Machine Shop I	4
MAC 275	Applied Metallurgy	4
Subtotal		**11**

Required Support Courses			
CAD	101	Computer Aided Drafting Fundamentals	4
CAD	172*	Geometric Dimensioning and Tolerancing	3
GTM	105*	Applied Technical Mathematics	3
Subtotal			**10**

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 120*	Machine Shop II	4
ELEC Technical Electives		23-24

Complete 23 - 24 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD

Subtotal **27-28**

Manual Machinist
Concentration Code: **MACM**

CAD 152*	Mechanical Design and Drafting I	4
MAC 120*	Machine Shop II	4
MAC 210*	Jig and Fixture Design	4
ELEC Technical Electives		15-16

Complete 15-16 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD. .....

Subtotal **27-28**

Mechanical Inspector
Concentration Code: **MACI**

CAD 152*	Mechanical Design and Drafting I	4
MAC 205*	Mechanical Inspection	4
ELEC Technical Electives		19-20

Complete 19-20 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD. .....

Subtotal **27-28**

Computer Numerical Control (CNC) Machinist
Concentration Code: **MACC**

MAC 205*	Mechanical Inspection	4
MAC 250*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 255*	Computer Numerical Control (CNC) Mill Programming II	4
MAC 260*	Computer Numerical Control (CNC) III: Lathe	4
ELEC Technical Electives		11-12

Complete 11-12 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD

Subtotal **27-28**

Computer Numerical Control (CNC) Programmer
Concentration Code: **MACP**

MAC 250*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 255*	Computer Numerical Control (CNC) Mill Programming II	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
MAC 260*	Computer Numerical Control (CNC) III: Lathe	4
ELEC Technical Electives		3-4

Complete 3-4 credit hours at the 100 level or higher from the following list with the approval of the department chair or faculty advisor: AUT, BCT, CAD, CIS, CSA, ENG, MAC, MAT, WLD. ....

Subtotal **27-28**

Total credits as displayed. .... **60 -61§**

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

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

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

Manufacturing Technology — Associate of Science Degree for Transfer

Program Identification
Code: **AOSMANUFTECH**

This degree display is designed for students planning to transfer to the University of Arizona to major in Mechanical Engineering. 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 course.

English Composition . . . . †
    WRT 101*, 102* fulfill this requirement

Humanities and Fine Arts 6
    See General Education section, page 51.

Biological and Physical Sciences . . . . †
    PHY 210/210LB/IN* and 216/216LB/IN* fulfill this requirement.

Mathematics . . . . †
    MAT 220* fulfills this requirement.

Social and Behavioral Sciences 9
    See General Education section, page 51.

Other Requirement Options . . . . †
    MAT 231* fulfills this requirement

AGEC Special Requirements
    The I, C, and G requirement should be fulfilled by courses in the above categories.
    See General Education section, page 51.

Subtotal . . . . 15¥

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MAC 110*	Machine Shop I	4
MAC 205*	Mechanical Inspection	4
MAC 250*	Computer Numerical Control (CNC) Mill Programming I	4
MAC 257*	Computer Aided Machining (CAM) I	4
MAC 260*	Computer Numerical Control (CNC) III Lathe	4
Subtotal 20		

Course Number	Course Title	Credit Hours
Required Support Courses- A grade of C or better is required for graduation.		
MAT 220*	Calculus I	5
MAT 231*	Calculus II	4
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
Subtotal 25		

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.

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

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

Mathematics

- 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 his/her degree should also contact an advisor or counselor from their chosen school for verification of transfer courses.

Program Identification
Code: **AOALIBRALART**

Media Communications

For Digital and Film Arts and Telecommunications **see Digital Arts**

For Print and Electronic Journalism **see Journalism and Media Publishing**

Microbiology

A student planning on obtaining a degree with an option in Microbiology 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**

Molecular/Cellular Biology

A student planning on obtaining a degree with an option in Molecular/Cellular Biology 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**

Music

- Music — Associate of Arts Degree for Transfer

Music — Associate of Arts Degree for Transfer

Program Identification
Code: AOAMUSIC

This program is designed to prepare students to become musical performers, composers, conductors, teachers, researchers or program directors. Employment opportunities exist in such places as schools, church and community organizations, music publication, band and orchestras. Students receive instruction to develop aural, composing, ensemble and solo skills in all areas of music. Cooperative education opportunities include performance for art galleries, a musical theater, a pep band, etc. The program is adaptable for part-time as well as full-time attendance and emphasizes close contact between teachers and students through small classes and individual attention. Faculty members are all active professional performers. For success in this program, it is important to have some background in music and to possess reading and listening skills, knowledge of repertoire, and self-discipline. Program advisor or counselors are available on the West Campus.

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 51.

Humanities and Fine Arts . . . . †
  Core courses fulfill this requirement.

Biological and Physical Sciences 8
  See General Education section, page 51.

Mathematics 3
  See General Education section, page 51.

Social and Behavioral Sciences. 6-9
  See General Education section, page 51.

Other Requirements 0-3
  See General Education section, page 51.

Special Requirements
  The I, C, and G requirement should be fulfilled by courses in the above categories.

Subtotal . . . . **26 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
Select two of the following three courses for six credits:		6
MUS 120*	Concert Band I	
or MUS 130*	Chorale (SATB)	
or MUS 131*	College Singers (SATB)	
MUS 125	Theory and Structure of Diatonic Music	3
MUS 126*	Theory and Structure of Counterpoint	3
MUS 127	Aural Perception: Diatonic and Rhythmic Skills	2
MUS 128*	Aural Perception: Melody and Rhythm	2
MUS 141	Piano Class I	2
MUS 142*	Piano Class II	2
MUS 143*	Piano Class III	2
MUS 144*	Piano Class IV	2
MUS 161-168*	Applied Music—Private Instruction	2
MUS 171-178*	Applied Music—Private Instruction	2
MUS 201*	History and Literature of Music I	3
MUS 202*	History and Literature of Music II	3
MUS 225*	Theory and Structure of Chromatic Music	3
MUS 226*	Theory and Structure of Modern Music	3
MUS 227*	Aural Perception: Harmony	2
MUS 228*	Aural Perception: Modern	2
MUS 261-268*	Applied Music—Private Instruction	2
MUS 271-278*	Applied Music—Private Instruction	2
Subtotal		**48**
Total credits		**74§**

* 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.

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 or 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

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, Telephone: 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) states "If convicted of one or more felonies, has received an absolute discharge from the sentences for all felony convictions five or more years prior to the date of filing an application." 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 student who successfully completes the first year of the Associate Degree Nursing Program and the NRS 180 course may be eligible to take the National Council Licensure Examination (NCLEX-PN) for licensure as a Practical Nurse (LPN).

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 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 HRP admissions office. Admission is dependent on evaluation of general education and nursing education course work as well as seat availability.

Interested applicants should contact the Nursing Department for specific information.

The Associate Degree Nursing (ADN) Program prepares the student to enter nursing practice as a registered nurse.

Associate Degree Nursing — Associate of Applied Science Degree for Direct Employment

Admission to the ADN program requires a separate application procedure.

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*: Starting in Fall 2002, 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.

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.

Subtotal 4-6

Course Number	Course Title	Credit Hours

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

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
Subtotal		**36**

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

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
Subtotal		**32-33**

Total credits as displayed .... **72-75§**

† 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 Professions — 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

Program Identification
Code: **CRTADMINAIDE**

An office assistant performs a variety of tasks to facilitate office operations. See an office and administrative professions faculty advisor or counselor located on the Downtown Campus.

Course Number		Course Title	Credit Hours
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	171*	Office Procedures	4
CSA	182A	Microsoft Windows: Current Version Module A	1
Subtotal			**14**
Required Support Courses			
CSA	120	Word Processing: Word	3
CSA	152A	Internet Browser: Microsoft Explorer Module A	1
RIM	132	Records Management: Filing Systems	3
Subtotal			**7**
Total credits as displayed			**21**

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

Office Specialist — Certificate for Direct Employment

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.

Subtotal. 3

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 112*	Advanced Computer Keyboarding: Document Production	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
Subtotal		**26**

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
Subtotal		**13**

Total credits as displayed. 42

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

**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.

Office and Administrative Professions — 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* fulfills 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.

Subtotal. 12

**Program Identification
Code: AASADMINSUPP**

This degree prepares students for entering into the office and administrative professionals field. Students 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 Professions — Associate of Applied Science Degree for Direct Employment *(continued)*

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
Subtotal		**24**

Required Support Courses		
OAP 199*	Co-op Related Class in OAP	1
OAP 199WK*	Co-op Work in OAP	3
Subtotal		**4**

Choose one of the following options: 23-29
(Department faculty advisor or counselor approval is recommended in the selection of the program option.)

Administrative Assistant

ACC 100	Practical Accounting Procedures	3
OAP 112*	Advanced Computer Keyboarding: Document Production	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

Computer Applications Office Assistant

OAP 171*	Office Procedures	4
BUS 125	Business on the Internet	
or BUS 148	Ethics in the Workplace	
or LIB 161	Research Techniques for the Internet	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 Gen Ed Science requirement)	

Medical Front Office Support Specialty

OAP	112*	Advanced Computer Keyboarding: Document Production	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	112*	Advanced Computer Keyboarding: Document Production	3
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 .... **63-69§**

* 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.. †
See General Education section, page 49.

Subtotal **18-21**

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
Subtotal			**12**

Program Identification Code: **AASMEDSECRTY**

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)*

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
Subtotal			**9-10**

Choose one of the following options: 12-26
    (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

Subtotal			**21**

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)

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**17**

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

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.

Computer Applications Office Specialist — Certificate for Direct Employment

(Formerly Data Entry Operator)

		Credit Hours
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.		
Subtotal		**6**

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 171*	Office Procedures	4
BUS 125	Business on the Internet	
or BUS 148	Ethics in the Workplace	
or LIB 161	Research Techniques for the Internet	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
Subtotal		**39**
Total credits as displayed		**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.

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.

Subtotal 6

Course Number		Course Title	Credit Hours
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
Subtotal			**33**

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 49

Computer and Information Literacy Requirement 1-3
  See General Education section, page 49.

Subtotal 16-18

Course Number		Course Title	Credit Hours
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
Subtotal. 36			

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
Subtotal. 17			

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 — Associate of Arts Degree for Transfer

- 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 51.

Humanities and Fine Arts 6-9
  See General Education section, page 51.

Biological and Physical Sciences 8
  See General Education section, page 51.

Mathematics 3
  See General Education section, page 51.

Social and Behavioral Sciences . . . . †
  POS 100 and 110 fulfill this requirement.

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

Special Requirements
  POS 110 fulfills the C requirements. The I and G requirements should be fulfilled by courses in the above categories.

Subtotal . . . . **23-26 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Subtotal		**15**

Required Support Courses

Second Language Requirement 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 6-10
  Complete 6-10 transferable electives from the Political Science transfer guide,
  prerequisite courses for your major or general education courses,
  or any transferable courses.
Subtotal **22-26**

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.

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 you 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 101and 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.
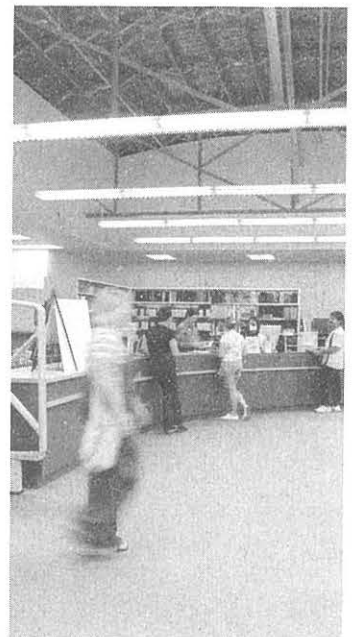
Pre-Architecture Certificate for Transfer

Program Identification Code: **CRTPREARCHIT**

This is a program 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 prerequisite 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 51.

Humanities and Fine Arts 6-9
  See General Education section, page 51.

Biological and Physical Sciences 4
  PHY 121/121LB/IN fulfills 5 credits of this requirement.
  See General Education section, page 51. for an additional science course.

Mathematics . . . . †
  MAT 151 fulfills this requirement.

Social and Behavioral Sciences 6-9
  See General Education section, page 51.

Other Requirements 0-3
  MAT 182 fulfills 3 credits of this requirement. Complete 3 additional credits.
  See General Education section, page 51.

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

Subtotal . . . . **25 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
PHY 121/121LB/IN*	Introductory Physics I	5
MAT 151	College Algebra	4
MAT 182	Trigonometry	3
Subtotal		**12**

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	

Total credits as displayed **37**

† 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 Science 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: **AOSSCIENCE**

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

- Public Administration—Associate of Business Administration (ABUS) Degree for Transfer

The Public Administration Degree program for transfer prepares students for a university Bachelor's degree program in Public Administration. Public Administration includes the following major fields of interest: Public Management, Health Services Administration, Criminal Justice Administration and Human Services Administration. Students interested in the latter two fields should consult administration of justice and social services faculty advisor or counselors. Pre-law students are encouraged to major in public administration. Skill development in human relations, statistics, decision-making and policy analysis is emphasized throughout the program.

This program has been primarily designed for transfer to the University of Arizona; however, this degree will apply to Public Administration at all other state universities, including Arizona State University, Northern Arizona University, and the University of Phoenix. Those wishing to transfer to the Business and Public Administration College at the University of Arizona should place heavy emphasis on mathematics. Verification of transfer courses should be established with the transfer university and college. 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. Students should check with program advisor or counselors located on the West Campus for further information.

New students are required to take the math assessment test which is administered during registration. The prerequisite for MAT 172 and 212 is MAT 151 or satisfactory score on mathematics assessment.

Public Administration — Associate of Business Administration (ABUS) Degree for Transfer

Program Identification
Code: AOBPUBLADMIN

The Public Administration Degree program for transfer prepares students for a university Bachelor's degree program in Public Administration.

This degree fulfills lower-division general education and major requirements for the Bachelor of Science degree in Public Administration at the University of Arizona and in Business Administration at University of Phoenix, Arizona State University, Northern Arizona University, and the University of Arizona. It may also transfer into public administration or business programs at other universities. See your business advisor or counselor.

Arizona General Education Curriculum Requirements (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 51.

Humanities and Fine Arts 6
   See General Education section, page 51.

Biological and Physical Sciences 8
   See General Education section, page 51.

Mathematics . . . . †
   MAT 174 or MAT 212 or higher fulfill this requirement.

Social and Behavioral Sciences . . . . †
   ECN 201 and POS 120 fulfill this requirement.

Other Requirements. . . . . †
   MAT 151 and either MAT 172 or 173 fulfill this requirement.

Special Requirements
   POS 120 fulfills the G requirement. The I and C requirement should be fulfilled by courses in the above categories.

Subtotal . . . . **20 ¥**

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
AJS	101	Introduction to Administration of Justice Systems	
or	256	Justice System Administration	3
PAD	105	Introduction to Public Administration	3
PAD	221	Health, Human Services, and Public Management	3
Subtotal			**9**

Required Support Course

ACC	173*	Introduction to Fund Accounting	3
BUS	205*	Statistical Methods in Economics and Business	3
BUS	220*	Legal Environment of Business	3
CIS	100*	Introduction to Computers and Information Systems	3
ECN	201*	Microeconomic Principles	3
ECN	202*	Macroeconomic Principles	3
MAT	151*	College Algebra	4

Math Requirement: 6

Please note: NAU and UA recommend the combination of:
MAT 173 and MAT 174

MAT 172* and 212*	Finite Mathematics Topics in Calculus	
OR		
MAT 173* and 174*	Mathematics for Business I Mathematics for Business II	
POS 120	Introduction to International Relations	3

Subtotal. **31**

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.

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

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
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**12**

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, 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

Program Identification
Code: CRTSAFETYCOM

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, 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.

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.			
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	Spanish for the Workplace	4
SSE	242	Crisis Intervention, Theory and Techniques	3
STU	130	Stress Management for Wellness	3
Subtotal			**34**
Total credits as displayed			**40**

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

Public Safety and Emergency Services Institute

The purpose of the Public Safety and Emergency Services Institute is to provide training and educational opportunities and resources to several career areas including Administration of Justice, Law Enforcement, Emergency Medical Technician, Fire Science and Public Safety Communications. We offer convenient, flexible and immediately useful programs to professionals who seek advancement in their careers as well as courses for the general public. In addition, the Law Enforcement Associate of Applied Science Degree is designed to transfer to NAU's Bachelor of Applied Science Degree in Justice Systems and Policy Planning, and the Fire Science Associate of Applied Science Degree to ASU's East Campus, Bachelor of Applied Science Degree in Fire Service Management. Both ASU (East Campus) and NAU's programs are offered in Tucson.

Educational opportunities at the Institute reflect contemporary issues, current techniques and technology used in public safety and emergency services. Our programs and services focus on the safety and well being of Southern Arizona and the greater community.

The training and education we offer can give your employees new and improved skills, insight and understanding, and opportunities to learn how to meet a changing agency's environment. We also provide all the academic support services they need: academic advising, computer labs, and information resources.

When your commissioned and non-commissioned employees enroll in courses which are a part of the Institute, your agency gains professionals who have a greater range of skills, and who have the education to meet the expanding role of your agency. The Institute provides a source for management education and leadership development plus targeted opportunities for professional development.

Our partnerships with public safety agencies are based on mutual respect, mutual trust and mutual benefit. We work together to make effective use of the talent, facilities and resources possessed by each partner.

See the following programs: Administration of Justice, Emergency Medical Technology, Fire Science, Corrections (See contractual), Law Enforcement, Juvenile Corrections (See contractual), and Public Safety Communications. Also see courses in Community Development (CDE).

Public Safety and Emergency Services Institute
6680 S. Country Club. Tucson, Arizona 85709-1700
Telephone:(520) 206-7814
Fax: (520) 206-7783
Lawrence Seligman, Director

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: Starting in Fall 2002, 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.

Subtotal **4-6**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
RAD 170*	Medical Imaging Fundamentals	3
RAD 171*	Radiographic Positioning I	4
RAD 172*	Medical Imaging Technology I	4
RAD 173*	Clinical Education I	2
RAD 174*	Radiographic Positioning II	4
RAD 175*	Medical Imaging Technology II	4
RAD 176*	Clinical Education II	4
RAD 177*	Clinical Education III	6
RAD 181*	Radiographic Positioning III	4
RAD 182*	Medical Imaging Technology III	4
RAD 183*	Clinical Education IV	4
RAD 184*	Radiographic Positioning IV	4
RAD 185*	Clinical Seminar	1
RAD 186*	Clinical Education V	4
Subtotal		**52**

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 — Associate of Applied Science Degree for Direct Employment

(continued)

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
Subtotal			**10**

Total credits as displayed ...... **66-68§**

* 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 credit hours.

Radiologic Technology — Magnetic Resonance Imaging- Certificate for Direct Employment

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
Required Core Courses - A grade of C or better is required for graduation.			
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	1
MRI	220*	Imaging Procedures	1
MRI	222*	MRI Pathology Detection	1
MRI	224*	ARRT Exam Preparation and MRI Physics Review	1
MRI	226*	MRI Clinical Education II	1
Total credits as displayed			**8**

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

Real Estate

- Real Estate Sales/Brokerage—Certificate for Direct Employment
- Real Estate Sales/Brokerage—Associate of Applied Science Degree for Direct Employment

The real estate program is designed to fulfill industry needs in the Tucson area. There are two options in real estate sales/brokerage: a certificate and a two-year Associate of Applied Science Degree for Direct Employment.

Real Estate Sales/Brokerage

This real estate option is designed to prepare persons to handle the sales of private residences, apartment buildings, industrial and commercial property and unimproved land. Students also are trained in finance, appraising, communications, and small business management. Training in real estate is offered through a one-semester basic certificate and through a two-year Associate of Applied Science degree program.

Real Estate Sales/Brokerage — Certificate for Direct Employment

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
RLS 105	Principles of Real Estate/License Preparation	6
Subtotal		**6**
Required Support Courses		
BUS 200	Business Law	
or BUS 220	Legal Environment of Business	3
CSA 101	Computer Fundamentals	3
SPE 120	Business and Professional Communication	
or WRT 154*	Career Communications	3
Technical Elective	3	

Complete 3 credit hours from the following list with the approval of the department chair or faculty advisor: RLS 205, BCT 101 or a CSA applications course.

Subtotal		**12**
Total credits as displayed		**18**

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

Program Identification Code: **CRTREALESTAT**

The certificate program, intended for the selling agent, qualifies students to take the state licensing exam. The State requires candidates for the sales license to have six credit hours (ninety clock hours) of real estate education which can be met by taking RLS 105, or RLS 101 and RLS 202.

This certificate provides the foundation for the Associate of Applied Science Degree in Real Estate Sales/Brokerage.
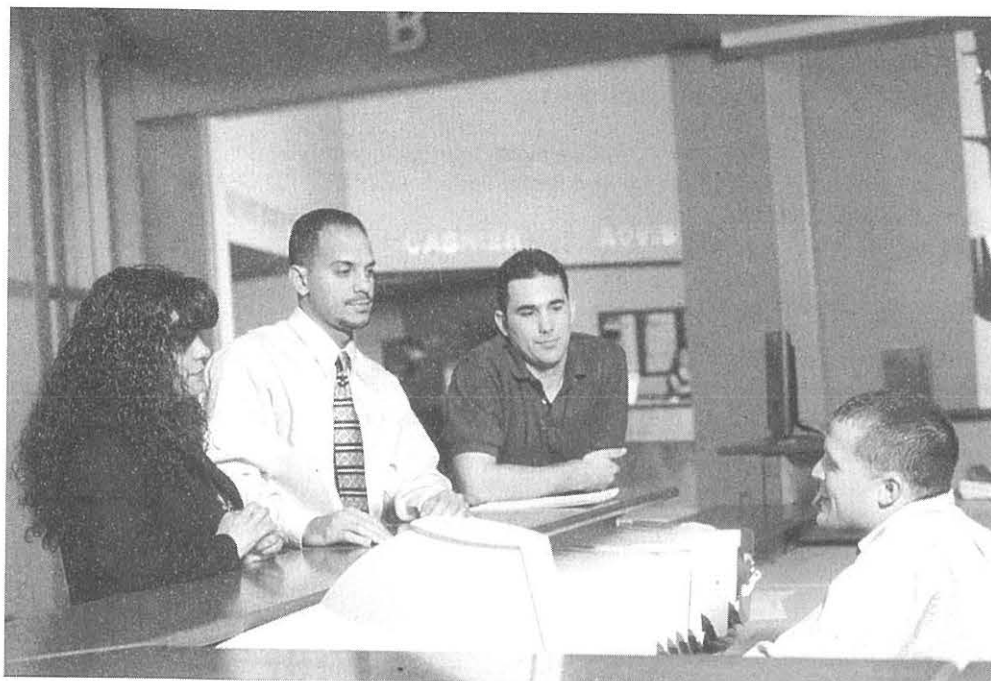
Real Estate Sales/Brokerage — Associate of Applied Science Degree for Direct Employment

Program Identification
Code: **AASREALESTAT**

The two-year program provides for additional growth, development and specialization in the real estate field. The real estate degree and certificate programs are job oriented. Persons interested in a four-year degree should follow the first two-year course requirements of the university they plan to attend.

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 and WRT 154 fulfill this requirement

Analysis and Critical Thinking Requirement 6
  See General Education section, page 49.

Humanities and Social Science Requirement 3
  ECN 201 or 202 fulfill 3 credits of this requirement See General Education section, page 49.

Computer and Information Literacy Requirement . . . . †
  CSA 101 fulfills this requirement.

Subtotal. 9

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
RLS	105	Principles of Real Estate/License Preparation	6
RLS	202	Real Estate Appraisals	3
RLS	205	Real Estate Finance	3
RLS	252*	Advanced Appraisal Techniques	3
Subtotal. 15			

		Required Support Courses	
ACC	101	Financial Accounting	3
ACC	102*	Managerial Accounting	3
BUS	151*	Mathematics of Business	3
BUS	200	Business Law	
or	BUS 220	Legal Environment of Business	3
CSA	101	Computer Fundamentals	3
ECN	201*	Microeconomic Principles	3
ECN	202*	Macroeconomic Principles.	3
MGT	110	Human Relations in Business and Industry	3
MGT	124	Small Business Management.	3
MKT	113	Salesmanship	3
SPE	120	Business and Professional Communication.	3
WRT	154	Career Communications.	3

Technical Electives 6
  Complete 6 credit hours at the 100 level or higher from the following list with the approval of the department chair and faculty advisor: ACC, BCT 101,CSA applications, ECN, FIN, MGT, MKT, RLS.

Subtotal. 42

Total credits as displayed. . . . . 66§

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

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

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

Recreation and Tourism Management

- Recreation and Tourism Management — Associate of Arts Degree for Transfer

Recreation specialty provides a broad understanding of opportunities within recreation departments, with an emphasis on the value of field-based learning. Tourism specialty provides an understanding of opportunities within the travel and tourism field. Recreation is the second-largest industry in the United States. Employment opportunities include, but are not limited to, the following areas: city, county, district and state park and recreation departments; hospitals, nonprofit community-based agencies; commercial recreation agencies; resort and tourist agencies; youth, teen, adult and senior citizens recreation; outdoor programs; fitness facilities; private membership clubs and camps.

Students entering the Recreation specialty area must possess a CPR certification, courses for this requirement are available at Pima Community College. See a recreation advisor.

Recreation and Tourism Management — 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 51.
Humanities and Fine Arts 6-9
  See General Education section, page 51.
Biological and Physical Sciences 8
  See General Education section, page 51.
Mathematics 3
  See General Education section, page 51.
Social and Behavioral Sciences 6-9
  See General Education section, page 51.
Other Requirements 0-6
  See General Education section, page 51.
Special Requirements
  The I, C, and G requirements should be fulfilled by courses in the above categories.

Subtotal . . . . 35 ¥

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
REC 120	Leisure and Society	3
REC 210*	Leisure Delivery Systems	3
REC 250*	Leadership in Recreation and Tourism.	3
REC 290*	Field Work	3
Subtotal. 12		

Choose one of the following two specialty areas:
  Department Chair/program advisor approval is recommended in the selection of the specialty areas:

Recreation

ECE 130	School-Age Child Care and Program Development	3
REC 283	Customer Service and Program Planning	3
SSE 132	Aging: Health and Physiology	3
Electives	. . . .	6

  Complete 6 transferable electives from the Recreation transfer guide or any transferable courses. See recreation advisor.

Tourism Management

HRM 211*	Hospitality Sales and Marketing Application I	3
TVL 101	Introduction to the Travel Industry	3
TVL 102	Computerized Reservation Systems I	3
TVL 205*	Tourism Marketing	3
TVL 214*	Destination Development	3

Subtotal. 15

Total credits as displayed . . . . 62§

* 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.

Program Identification Code: AOARECTOUR

There are two specialty areas within this degree: Recreation and Tourism. This program is designed to transfer into Recreation and Tourism Management at Arizona State University-West. It may transfer to other universities as well. See a recreation or tourism advisor.

Reserve Officers Training Corps (ROTC)

- Air Force ROTC Certificate
- Army ROTC Certificate
- Navy ROTC Certificate

ROTC is 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 their 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.

Air Force ROTC Certificate

Program Identification
Code: CRTAIRFROTC

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MLA 100	Air Force Today I	2
MLA 101	Air Force Today II	2
MLA 200	History of Air Power I	2
MLA 201	History of Air Power II	2
Total credits as displayed		**8**

Army ROTC Certificate

Program Identification
Code: CRTARMYROTC

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
MLS 100	Introduction to Leadership	3
MLS 101	Leadership Principles	3
MLS 200	Army Composition/Function and Leadership Development I	3
MLS 201	Army Composition/Function and Leadership Development II	3
Total credits as displayed		**12**

Navy ROTC Certificate

Program Identification
Code: CRTNAVYROTC

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
NSP 100	Naval Laboratory I	1
NSP 101	Introduction to Naval Science	2
NSP 102	Naval Ship Systems I: Engineering	3
NSP 200	Naval Laboratory II	1
NSP 201	Naval Ship Systems II: Weapons	3
NSP 202	Sea Power and Maritime Affairs	3
Total credits as displayed		**13**

Respiratory Therapist Program

- 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. He or she 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

Subtotal **3**

Course Number	Course Title	Credit Hours
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*	Basic Therapeutics in Respiratory Care	5
RTH 123*	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*	Critical Care Therapeutics	5
RTH 243*	Advanced Assessment and Monitoring	4
RTH 245*	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 257*	Clinical Applications and Professional Development	1
Subtotal		**54**

Course Number	Course Title	Credit Hours
Support Courses		
BIO 205IN*	Microbiology	4
WRT 102*	Writing II	3
PSY 101	Introduction to Psychology	4
Subtotal		**11**

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.

Science

See **Associate of Science Degree for Transfer**

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 Substance Abuse Specialty — Associate of Arts Degree for Transfer
- Social Services Youth Services Specialty — Associate of Applied Science Degree for Direct Employment
- Social Services Youth Services Specialty — Associate of Arts Degree for Transfer
- 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 interviews, 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, five 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.

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.

Subtotal 19-21

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
SSE 110	Introduction to Social Welfare.	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
Subtotal.		**22**

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.

Subtotal. 21

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

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.

Due to required changes see an advisor or the Online Catalog for the most current display of course requirements (www.pima.edu).

Program Identification
Code: **AOASOCIALSRV**

Social Services Substance Abuse Specialty — 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.
Subtotal 19-21

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.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
SSE 110	Introduction to Social Welfare	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
Subtotal 34		

Required Support Courses

Electives 9
  (Please see an advisor to select appropriate course work.)
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 Substance Abuse Specialty — Associate of Arts Degree for Transfer

Program Identification
Code: **AOASUBSTABUS**

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. 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.

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 51.

Humanities and Fine Arts 6-9
See General Education section, page 51.

Biological and Physical Sciences 8
See General Education section, page 51.

Mathematics 3
See General Education section, page 51.

Social and Behavioral Sciences 3-6
SSE 110 fulfills 3 credits of this requirement. Select an additional course from the General Education section, see page 51. .

Other Requirements 0-6
See General Education section, page 51.

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

Subtotal . . . . **32 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
SSE 110	Introduction to Social Welfare	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
Subtotal		**30**

Required Support Course

SSE 292* Social Services Field Experience
(Optional, recommended but not required)

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

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

¥ AGEC requires 35 credits. This total 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.

Social Services Youth Services Specialty — 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.

Subtotal **19-21**

Course Number		Course Title	Credit Hours
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
Subtotal			**34**

Required Support Courses

Electives 9
  Please see an advisor to select appropriate course work.

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.

Program Identification
Code: **AASYOUTHSERV**

The youth services specialty degrees provide 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.

Social Services Youth Services Specialty — Associate of Arts Degree for Transfer

Program Identification
Code: **AOAYOUTHSERV**

The youth services specialty degrees provide 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. 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.

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 51.

Humanities and Fine Arts 6-9
   See General Education section, page 51.

Biological and Physical Sciences 8
   See General Education section, page 51.

Mathematics 3
   See General Education section, page 51.

Social and Behavioral Sciences 3-6
   SSE 110 fulfills 3 credits of this requirement. Select an additional course from the General Education section, see page 51.

Other Requirements 0-6
   See General Education section, page 51.

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

Subtotal . . . . 32 ¥

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
SSE	110	Introduction to Social Welfare	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
Subtotal 24			

Required Support Courses			
AJS	212	Juvenile Justice Procedures	3
ECE	117*	Child Growth and Development	3
SSE	290*	Field Experience Youth Services	
		(Optional, recommended but not required)	
Subtotal 6			

Total credits as displayed . . . . 62§

* 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.

Basic Social Services Certificate

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
SSE 110	Introduction to Social Welfare	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
Total credits as displayed		**18**

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

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.

Basic Social Services Substance Abuse Certificate

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
SSE 110	Introduction to Social Welfare	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
Total credits as displayed		**18**

*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
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**18**

*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

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.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Subtotal		**13**

Communication

One Writing, Computer, Speech, or Language course 100 level or higher		3
Total credits as displayed		**16**

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

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.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
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
Subtotal		**18**
Total credits as displayed		**18**

* 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

**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 51.

Humanities and Fine Arts 6-9
See General Education section, page 51.

Biological and Physical Sciences 8
See General Education section, page 51.

Mathematics 3
See General Education section, page 51.

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 51.

Other Requirements 0-3
See General Education section, page 51.

Special Requirements
SPE 120 fulfills the C and G requirement. The I requirement should be fulfilled by courses in the
above categories.

Subtotal . . . . **29 ¥**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
SOC 101	Introduction to Sociology	3
SOC 201	Minority Relations and Urban Society	
or SOC 204	Women in Society	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	

Subtotal **9**

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   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.

Subtotal **22-26**

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

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

¥ The 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.

**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 divi-
sion 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 deter-
mine the transferability of
Pima College courses.*

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

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 ASU, NAU or 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.

Program Identification
Code: **AOALIBRALART**

Technology — Electronic and Optical Systems Technologies

- Technology Certificate for Direct Employment
- Semiconductor and Electronics Manufacturing Technology—Associate of Applied Science Degree for Direct Employment
- Electronics Technology—Associate of Applied Science Degree for Direct Employment
- Electronic Telecommunications Technology—Associate of Applied Science Degree for Direct Employment
- Microcomputer Technology Certificate for Direct Employment
- Microcomputer Technology—Associate of Applied Science Degree for Direct Employment
- Systems Networking Technology—Associate of Applied Science Degree for Direct Employment
- Electro-Optical Assembly and Testing Certificate for Direct Employment
- Optical Manufacturing Certificate for Direct Employment
- Electro-Optics—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
Required Core Courses - A grade of C or better is required for graduation.		
TEC 121/121LB*	Basic Electric and Magnetic Properties	4
TEC 122/122LB*	Applied Semiconductor Devices	4
TEC 123/123LB*	Digital Circuits and Applications	4
TEC 124*	Modern Electronic Communications	4
TEC 125/125LB*	AC Networks with Phasors	3
TEC 151	Information Transfer in Technology	2
TEC 170*	Foundations of Improvement Technology	3
TEC 171*	Statistical Process Control and Experimentation	3
Subtotal. 27		

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
Subtotal. 9		
Total credits as displayed. 36		

* This course has a prerequisite, co-requisite, or recommendation. See course description section.
† Core or support course(s) fulfill this requirement.

Program Identification Code: CRTTECHNOLGY

This program provides the common core plus one electronic telecommunications 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 telecommunications, microcomputer technology, semiconductor manufacturing, systems networking, and electronics.

Semiconductor and Electronics Manufacturing 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 electronics industries. It contains the common core of the Technology curriculum and adds courses on optics, vacuum systems, fluidic devices and automated systems, power RF, 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 6
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.

Subtotal 18

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
TEC	103*	Light and Optical Systems	1
TEC	121/121LB*	Basic Electric and Magnetic Properties	4
TEC	122/122LB*	Applied Semiconductor Devices	4
TEC	123/123LB*	Digital Circuits and Applications	4
TEC	125/125LB*	AC Networks with Phasors	3
TEC	151	Information Transfer in Technology	2
TEC	170*	Foundations of Improvement Technology	3
TEC	171*	Statistical Process Control and Experimentation	3
TEC	182	Fundamentals of Semiconductor Manufacturing Chemistry and Safety	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	273*	Semiconductor Manufacturing Processes II	3
TEC	274/274LB*	Vacuum Systems and Power RF	3
Subtotal			**46**

Course Number		Course Title	Credit Hours
Required Support Course			
TEC	160*	Microcomputers and Programming Techniques	3
Total credits as displayed			**67§**

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

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

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

Electronics 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 6
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.

Subtotal **18**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
TEC 121/121LB*	Basic Electric and Magnetic Properties	4
TEC 122/122LB*	Applied Semiconductor Devices	4
TEC 123/123LB*	Digital Circuits and Applications	4
TEC 124*	Modern Electronic Communications	4
TEC 125/125LB*	AC Networks with Phasors	3
TEC 126*	Electronics Construction and Assembly	3
TEC 128/128LB*	Electronics Measurements	3
TEC 151	Information Transfer in Technology	2
TEC 170*	Foundations of Improvement Technology	3
TEC 171*	Statistical Process Control and Experimentation	3
TEC 221*	Linear Devices	3
TEC 222/222LB*	Electromechanical Devices and Systems	4
TEC 250/250LB*	Digital Devices	4
TEC 251/251LB*	Analog Circuits	4
Electives:	. . . .	1-4

Select one course from the list below:
TEC 103, 130/130LB, 182, 225/225LB, 227/227LB, 290

Subtotal **49**

Required Support Course

TEC 160* Microcomputers and Programming Techniques 3

Total credits as displayed . . . . **70-73§**

* 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, electronic communications, electronics construction and measurement, technical communications and team problem solving, statistical process control and experimentation, and electromechanical systems.

Electronic Telecommunications Technology — Associate of Applied Science Degree for Direct Employment

Program Identification
Code: AASTECTELCOM

This program enables the student, equipped with common core courses of the Technology curriculum to put major emphasis on electronic communications, particularly information transmission systems, RF and microwave devices, and integrated systems in telecommunications. 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.

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 . . . . †
  Core or support course fulfills this requirement.

Subtotal 18

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
TEC	121/121LB*	Basic Electric and Magnetic Properties	4
TEC	122/122LB*	Applied Semiconductor Devices	4
TEC	123/123LB*	Digital Circuits and Applications	4
TEC	124*	Modern Electronic Communications	4
TEC	125/125LB*	AC Networks with Phasors	3
TEC	151	Information Transfer in Technology	2
TEC	170*	Foundations of Improvement Technology	3
TEC	171*	Statistical Process Control and Experimentation	3
TEC	221*	Linear Devices	3
TEC	222/222LB*	Electromechanical Devices and Systems	4
TEC	227/227LB*	Communication and Information Transmission Systems	4
TEC	228/228LB*	RF and Microwave Devices	4
TEC	229*	Integrated Systems in Telecommunications	4
Subtotal			**46**

Support Course

TEC	160*	Microcomputers and Programming Techniques	3
Total credits as displayed			**67§**

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

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

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

Microcomputer 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 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.			
TEC	121/121LB*	Basic Electric and Magnetic Properties	4
TEC	123/123LB*	Digital Circuits and Applications	4
TEC	125/125LB*	AC Networks with Phasors	3
TEC	130/130LB*	Microcomputer Assembly and Testing	4
TEC	132/132LB*	Microcomputer Systems Servicing	4
TEC	151	Information Transfer in Technology	2
TEC	170*	Foundations of Improvement Technology	3

Subtotal 24

		Required Support Course	
TEC	160*	Microcomputers and Programming Techniques	3

Total credits as displayed 33

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

Program Identification
Code: CRTTECCOMPUT

This program provides the student with basic core courses that will couple nicely with the Microcomputer Technology Associate of Applied Science program and help prepare the student for limited entry level positions in some microcomputer arenas.

Microcomputer 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 6
  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.

Subtotal 18

Program Identification
Code: AASTECCOMPUT

This program enables the student, equipped with common core courses of the Technology curriculum, to put major emphasis on microcomputer assembly and testing, microcomputer systems servicing, microcomputer repair, and basic networking including dedicated server networks. 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.

Microcomputer Technology — Associate of Applied Science Degree for Direct Employment
(continued)

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
TEC	121/121LB*	Basic Electric and Magnetic Properties	4
TEC	122/122LB*	Applied Semiconductor Devices	4
TEC	123/123LB*	Digital Circuits and Applications	4
TEC	124*	Modern Electronic Communications	4
TEC	125/125LB*	AC Networks with Phasors	3
TEC	130/130LB*	Microcomputer Assembly and Testing	4
TEC	132/132LB*	Microcomputer Systems Servicing	4
TEC	151	Information Transfer in Technology	2
TEC	170*	Foundations of Improvement Technology	3
TEC	171*	Statistical Process Control and Experimentation	3
TEC	230/230LB*	Peer-to-Peer Networking	4
TEC	232/232LB*	Dedicated Server Networks	4
TEC	234/234LB*	Microcomputer Repair	4
Subtotal			**47**

Required Support Course			
TEC	160*	Microcomputers and Programming Techniques	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.

Systems Networking 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 6
   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.

Subtotal. 18

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
TEC 121/121LB*	Basic Electric and Magnetic Properties.	4
TEC 122/122LB*	Applied Semiconductor Devices	4
TEC 123/123LB*	Digital Circuits and Applications	4
TEC 124*	Modern Electronic Communications	4
TEC 125/125LB*	AC Networks with Phasors.	3
TEC 130/130LB*	Microcomputer Assembly and Testing.	4
TEC 132/132LB*	Microcomputer Systems Servicing.	4
TEC 151	Information Transfer in Technology	2
TEC 170*	Foundations of Improvement Technology	3
TEC 171*	Statistical Process Control and Experimentation	3
TEC 230/230LB*	Peer-to-Peer Networking.	4
TEC 232/232LB*	Dedicated Server Networks	4
TEC 235*	Survey of Networks and Operating Systems	3
TEC 236*	Underpinnings of the Internet.	3
TEC 237/237LB*	Contemporary Client/Server Computing	3
Subtotal	. . . .	**53**

Support Course

TEC 160*	Microcomputers and Programming Techniques	3
Total credits as displayed	. . . .	**73§**

* 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: **AASTECNETWRK**

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 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

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, optical shop protocol and safety, and fiber optic cable assembly and testing.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
TEC 113*	Problem Solving for Electronics and Optics	3
TEC 114*	Mathematics for Optics	2
TEC 116*	Optical Shop Protocol and Inspection Standards	2
TEC 117*	Optical Assembly Techniques	3
TEC 126*	Electronics Construction and Assembly	3
Subtotal		**13**
Total credits as displayed		**13**

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

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 geometric and wave optics and advanced coursework in fiber optics installation and testing.

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
TEC 113*	Problem Solving for Electronics and Optics	3
TEC 114*	Mathematics for Optics	2
TEC 116*	Optical Shop Protocol and Inspection Standards	2
TEC 117*	Optical Assembly Techniques	3
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
Subtotal		**21**
Total credits as displayed		**21**

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

Electro-Optics — 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
   TEC 113 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 . . . . †
   Core or support course fulfills this requirement.

Subtotal **15**

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
TEC 113*	Problem Solving for Electronics and Optics	3
TEC 114*	Mathematics for Optics	2
TEC 116*	Optical Shop Protocol and Inspection Standards	2
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	3
TEC 126*	Electronics Construction and Assembly	3
TEC 140*	Geometric Optics	2
TEC 141*	Wave Optics	3
TEC 151	Information Transfer in Technology	2
TEC 170*	Foundations of Improvement Technology	3
TEC 171*	Statistical Process Control and Experimentation	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
Subtotal		**54**

Required Support Course

Course Number	Course Title	Credit Hours
TEC 160*	Microcomputers and Programming Techniques	3

Total credits as displayed . . . . **72§**

* 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.

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.

Theater

- Theater — Associate of Arts Degree for Transfer

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.

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 51.

Humanities and Fine Arts 3
   THE 140 and 151 fulfill 6 credits of this requirement. To fulfill the remaining 3 credits complete an Art List course. See General Education section, page 51.

Biological and Physical Sciences 8
   See General Education section, page 51.

Mathematics 3
   See General Education section, page 51.

Social and Behavioral Sciences. 6-9
   See General Education section, page 51.

Other Requirements 0-3ß
   See General Education section, page 51.

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

Subtotal . . . . 29 ¥

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
THE 103	Voice and Movement for the Actor I	1
THE 104*	Voice and Movement for the Actor II	1
THE 111	Stagecraft	3
THE 113*	Stagecraft Crew	1
THE 115	Makeup	1
THE 140	History of Theater I	3
THE 141	History of Theater II	3
THE 149	Introduction to Acting I	3
THE 151*	Introduction to Acting II	3
THE 220*	Stage Lighting	2
THE 221*	Stage Lighting Laboratory	1
THE 222*	Stage Lighting Crew	1
THE 245*	Principles of Dramatic Structure	3
Subtotal		**26**

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

Option 1:		
THE 118	Basic Theater Graphics	2
THE 223*	Scene Design	2
THE 224*	Scene Design Laboratory	1
THE 225*	Scene Design Crew	1

Option 2:		
THE 250*	Intermediate Acting I	3
THE 251*	Intermediate Acting II	3

Total credits . . . . 61§

* 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

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.

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
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
Subtotal			**26**
Required Support Courses			
CSA	101	Computer Fundamentals	3
Total credits as displayed			**29**

* 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

- 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

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
Required Core Courses - A grade of C or better is required for graduation.			
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
Total credits as displayed			**23**

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

Basic Truck Driver — Certificate for Direct Employment

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.

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
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
Total credits as displayed			**8**

Straight Truck and Bus Driver — Certificate for Direct Employement

Course Number	Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.		
TDT 116*	Straight Truck and Bus Driver	3
TDT 117*	Straight Truck and Bus Driver: Road and Range	3
Total credits as displayed		**6**

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
Required Core Courses - A grade of C or better is required for graduation.		
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
Total credits as displayed		**12**

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

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.

Veterinary Technology

- Veterinary Technician — Associate of Applied Science Degree

This program is academically challenging and is based on the American Veterinary Medical Association guidelines. Students must meet with department faculty prior to applying to the program.

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.
- Math assessment test score at MAT 122 or higher, or completion of MAT 092 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. (Students are strongly encouraged to undergo rabies immunization prior to entering the program.)

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 animals, stand for long periods of time and perform bending activities. Individuals should give careful consideration to the mental and physical demands of the program prior to making application.

General Requirements
- Total required credits: 70.
- VET course work: 45 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. Program graduates are knowledgeable in the care and handling of animals, animal behavior, restraint, nutrition, medical and nursing, anesthesiology, radiography and clinical laboratory procedures. The program consists of four semesters, and one five week summer externship. Upon graduation, a student will be eligible to take the state and national boards to become a certified veterinary technician.

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 and WRT 154 or SPE 120 and WRT 154 fulfill this requirement.

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.

Subtotal. 6

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
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	3
VET	131*	Animal Anatomy and Physiology II	3
VET	150*	Pharmacology and Disease	3
VET	200*	Anesthetic and Nursing	3
VET	205*	Radiography and Imaging	3
VET	210*	Veterinary Nursing Procedures III	3
VET	211*	Veterinary Nursing Procedures IV	3
VET	220*	Clinical Pathology III	3
VET	225*	Veterinary Clinical Procedures	3
VET	291*	Veterinary Technician Clinical Experience	3
Subtotal. 45			

Required Support Courses

SPE	102	Introduction to Communication	
or	SPE 120	Business and Professional Communications	3
BIO	100IN	Biology Concepts	4
CHM	130/130LB/		
	130IN	Fundamentals of Chemistry	5
CSA	100	Computer Literacy	1
MAT	122*	Intermediate Algebra	3
WRT	154	Career Communications	3

Subtotal **19**

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.

Welding

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

Welding — Certificate for Direct Employment

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

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

Communication Requirement 3
  See General Education section, page 49.

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

Subtotal **6**

Program Identification Code: CRTWELDING

This program is conducted in a building designed for welding instruction. 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-coordinator for details.

Course Number	Course Title	Credit Hours
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
Subtotal		**19**

Required Support Courses

MAC 103*	Applied Shop Mathematics	3
MGT 110	Human Relations in Business and Industry	3
Subtotal		**6**

Total credits as displayed **31**

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

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 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
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
Subtotal		**27**

Required Support Courses

MAC 103*	Applied Shop Mathematics	3
Technical Electives		12

  Complete 12 credit hours from the following:
  OAP 111A, CAD 101, 152, CSA 101, MAC 110, 120, 250, PHY 101/101LB

Subtotal **15**

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.

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
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
Digital Arts	DAR
Early Childhood Education	ECE
Economics	ECN
Education	EDU
Educational Technology	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
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 Business	GEB

Listing of Course Prefixes (continued)

General Technology Mathematics	GTM
Geography	GEO
Geology	GLG
German	GER
Greek	GRK
Health Care	HCA
Health Continuing Education	HCE
Health Education	HED
Hebrew	HEB
Histology	HTP
History	HIS
Home Economics	HEC
Honors	HON
Hospitality	HRM
Humanities	HUM
Human Resources	HRS
Interior Design	DES
International Business Studies	IBS
Interpreter Training	ITP
Italian	ITA
Japanese	JPN
Journalism	JRN
Landscape Technician	LTP
Latin	LAT
Legal Assistant	LAS
Library Skills	LIB
Literature	LIT
Machine Tool Technology	MAC
Magnetic Resonance Imaging	MRI
Maintenance Technology	MNT

Management	MGT
Marketing	MKT
Material Reclamation	MRD
Mathematics	MAT
Microelectronics	MRE
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
Recreation	REC
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 Foodservice Management	RCF
Russian	RUS
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
Training for Special Education	TSE
Training in Behavioral Health	TBH
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" in index.

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.

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.

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.

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.

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.

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.

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.

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.

ACC 190B Internship in Accounting: Module B /.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.

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.

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.

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.

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.

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.

ACC 205 Corporate and Partnership Tax Accounting /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): ACC 101.
Principles of federal taxation of partnerships and corporations (including S corporations). Includes gift, trust, and estate taxation.

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.

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.

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.

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. Involves review of accounting theory and practical bookkeeping skills. Includes adjusting and correcting entries, bank reconciliations, payroll, depreciation, and inventory.

ACC 299 Co-op Related Class in ACC /1 cr. Hr./1 period (1 lec.)
Co-requisite(s): Concurrent enrollment in ACC 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.

ACC 299WK Co-op Work in ACC /1-8 cr. hrs./5-40 periods (5-40 lab)
Co-requisite(s): Concurrent enrollment in ACC 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.

ADMINISTRATION OF JUSTICE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

AJS 107 Patrol Procedures /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): AJS 101 or concurrent enrollment or consent of instructor.
Patrol as one of the primary police operations. Includes conspicuous presence as a means of suppressing crime and preserving peace, organization and functions of police patrol, methods, techniques and responsibility in patrol operations, use of special equipment, and application of laws on arrest, search and seizure.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 interferes with the administration of justice.

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.

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.

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.

AJS 256 Justice System Administration /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): AJS 101 or consent of instructor.
Examination of crime, punishment, and correctional practices. Includes current issues affecting the economy, politics, social stability, prison and community corrections, and minorities.

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.

AMERICAN INDIAN STUDIES
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

ANTHROPOLOGY
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

ANT 104 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 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 104.

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.

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.

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.

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.

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 Guadelupe 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.

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.

ANT 135 Pre-Columbian Art /3 cr. hrs./3 periods (3 lec.)
Survey of the art and architecture of the Americas from the earliest times to the period of the Spanish conquest. Includes archaeology, art history, ethnohistory, folklore, ethnography, and literature of Pre-Columbian peoples. Also includes recognition of major art styles and important sites.
Information: Same as ART 135 and HIS 135.

ANT 136 Masks /3 cr. hrs./3 periods (3 lec.)
Survey of traditional masks and sculpture of the tribal peoples of North America, Africa, Asia, Indonesia, and Oceania. Includes archaeology, art history, ethnohistory, folklore, ethnography, and literature of tribal peoples. Also includes recognition of major art styles and their cultural relationships.
Information: Same as ART 136 and HIS 136.

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.

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.

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 micro evolution and macro evolution, human variability and demography. Also includes population biology and genetics.

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.

ANT 203 Ethnic Groups and Culture /3 cr. hrs./3 periods (3 lec.)
Anthropological survey of ethnicity. 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.

ANT 205 Intro 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.

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.

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.

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.

ANT 215 The Nature of Language /3 cr. hrs./3 periods (3 lec.)
Introduction to anthropological linguistics. Includes the history of linguistics and language, descriptive linguistics, sociolinguistics, language and thought, language acquisition, and the biology of language development. Also includes bilingualism and multiculturalism.

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 statistical methods, archaeological analysis, and a synthesis of archaeological data.
Information: Same as ARC 225.

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.

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.

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.

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.

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.

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.

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 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 ARC 278.

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.

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.

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.

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.

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.

ANT 286 Field Mapping II /4 cr. hrs./8 periods (2 lec., 6 lab)
Prerequisite(s): ARC 285.
Recommended: Consult instructor for alternative prerequisite(s).
Continuation of 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.

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.

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.

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.

APACHE LANGUAGE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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 Apace traditional culture.

ARCHAEOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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, resources and facilities of the Archaeology Center.
Information: Field trip is part of the course.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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, mammal and avian bone identification, and prehistoric ceramics.
Information: Same as ANT 250.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 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.

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. Also includes software applications and data manipulation. Also includes using museum collections, equipment, resources and facilities of the Archaeology Center.
Information: Same as ANT 289.

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.

ARC 296 Independent Studies in ARC/ANT /.5-3 cr. hrs./.5-3 periods (.5-3 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.

ART

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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 2-D studio production. Also includes art theory, slide and digital exploration of major periods in World Art, studio activities in two-dimensional materials, and visits to local art museums.

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.

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.

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.

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, spueing, mold making, casting in bronze and aluminum, and finishing metal castings.

ART 130 Art and Culture I /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.

ART 131 Art and Culture II /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.

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.

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 under represented Americans, and issues surrounding cultural production.

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.

ART 135 Pre-Columbian Art /3 cr. hrs./3 periods (3 lec.)
Survey of the art and architecture of the Americas from the earliest times to the period of the Spanish conquest. Includes archeology, art history, ethnohistory, folklore, ethnography, and literature of Pre-Columbian peoples. Also includes recognition of major art styles and important sites.
Information: Same as ANT 135 and HIS 135.

ART 136 Masks /3 cr. hrs./3 periods (3 lec.)
Survey of traditional masks and sculpture of the tribal peoples of North America, Africa, Asia, Indonesia, and Oceania. Includes archeology, art history, ethnohistory, folklore, ethnography, and literature of tribal peoples. Also includes recognition of major art styles and their cultural relationships.
Information: Same as ANT 136 and HIS 136.

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.

ART 141 Photography II /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): ART 140.
Principles and processes of intermediate black and white photography. Includes developing a personal vision and utilizing archival procedures.

ART 143 Commercial Photography /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.

ART 147 Alternative Processes in Photography /4 cr. hrs./4 periods (4 lec.)
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.

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.

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.

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.

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.

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.

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 1745 together constitute ART 175.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

ART 250 Gallery and Museum Practices /4 cr. hrs./4 periods (4 lec.)
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.

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.

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.

ART 262 Ceramics IV /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): ART 260.
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.

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.

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.

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.

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.

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.

ART 296 (I1) Independent Study in ART: Art History /1-3 cr. hrs./2-5 periods (1-2 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.

ART 296 (I2) Independent Study in ART: Ceramics /1-3 cr. hrs./3-5 periods (1-2 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.

ART 296 (I3) Independent Study in ART: Metals /1-3 cr. hrs./3-5 periods (1-2 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.

ART 296 (I4) Independent Study in ART: Painting, Drawing, and Design /1-3 cr. hrs./3-5 periods (1-2 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.

ART 296 (I5) Independent Study in ART: Photography /1-3 cr. hrs./ 3-5 periods (1-2 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.

ART 296 (I6) Independent Study in ART: Printmaking /1-3 cr. hrs./3-5 periods (1-2 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.

ART 296 (I7) Independent Study in ART: Sculpture /1-3 cr. hrs./3-5 periods (1-2 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.

ART 296 (I8) Independent Study in ART: Fibers /1-3 cr. hrs./ 3-5 periods (1-2 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.

ART FOR PERSONAL DEVELOPMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

APD 063 Acrylic and Oil Painting II /2 cr. hrs./4 periods (1 lec., 3 lab)
Intermediate painting for further development of the techniques. Includes review of painting preparation, intermediate composing and building paintings, and intermediate development of a personal vision.

APD 064 Acrylic and Oil Painting III /2 cr. hrs./4 periods (1 lec., 3 lab)
Recommended: 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.

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.

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.

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.

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.

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.

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.

APD 077 Mariachi Music IV /2 cr. hrs./4 periods (1 lec., 3 lab)
Prerequisite(s): APD 073.
Continuation of APD 073. Includes history and evolution of mariachi music, ear training, rhythm types, tonality and its application, and vocal training.

APD 078 Mariachi Music V /2 cr. hrs./4 periods (1 lec., 3 lab)
Prerequisite(s): APD 077.
Continuation of APD 077. Includes music theory, rhythms and patterns, rhythmic applications, advanced tonality application techniques, performance and gesturing techniques, and execution of songs.

ASSEMBLY PRODUCTION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

ASP 109 Mechanical Assembly Tools and Machines /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): ASP 110, MAT 082.
Operation and application of mechanical assembly tools and machines. Includes handling, maintenance, storage, cleaning procedures, and safety and hazardous materials associated with mechanical assembly tools. Also includes modifying tools, fixtures and jigs, aids and machines, and balancing and shimming.

ASP 110 Assembly Tools and Instruments /2 cr. hrs./3 periods (1 lec., 2 lab)
Hand tools and measuring devices on the manufacturing assembly line. Includes safety, basic and special assembly tools, fastener installation, precision measuring tools, torque instruments, optics and measuring instruments.

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.

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.

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.

ASP 116 Electronic Component Preparation and Insertion Equipment /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): Consent of instructor.
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).

ASP 118 Physical Metrology /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): PHY 115.
Theory and application of physical properties. Includes pressure, vacuum, temperature, vibration, acceleration and humidity.

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.

ASP 121 Technical Fundamentals of Construction and Assembly / 2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): TEC 111 or MAT 092 or satisfactory score on the Mathematics Assessment Test.
Co-requisite(s): ASP 121LB.
Fundamentals of electronic construction and assembly. Includes components, representation, arithmetic, and basic electrical concepts. Also includes environmental factors, using charts and tables, and principles of measurement.

ASP 121LB Technical Fundamentals of Construction and Assembly Lab/.5 cr. hr./1 period (1 lab)
Prerequisite(s): TEC 111 or MAT 092 or satisfactory score on the Mathematics Assessment Test.
Co-requisite(s): ASP 121.
Fundamentals of electronic construction and assembly in a laboratory setting. Includes electric meters and use of an oscilloscope.

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.

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.

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.

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.

ASTRONOMY

For courses numbered 098, 198, 298, see "Topics Courses" in index

AST 101/101IN 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 thinking and science in contrast to pseudoscience.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

AST 101LB Solar System Laboratory /1 cr. hr./3 periods (3 lab)
Co-requisite(s): AST 101.
Laboratory for AST 101. Includes in-class exercises, outside observation projects, independent studies, and self-initiated field trips to local astronomy facilities. Emphasizes hands-on group and individual experiences to enrich understanding of AST 101 lecture material.

AST 102/102IN 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.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

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 exercises, outside observation projects, independent studies, and self-initiated field trips to local astronomy facilities. Emphasizes hands-on group and individual experiences to enrich understanding of AST 102 lecture material.

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.

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.

AUTOMOTIVE TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

AUT 089 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.

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.

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 systems, electrical systems, suspension/steering systems, engine performance, and tools and equipment.

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.

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.

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.

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.

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.

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.

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.

AUT 132 Automotive Drivetrain Removal and Replacement /3 cr. hrs./ 7 periods (1 lec., 6 lab)
Principles and procedures for automatic driveline component exchange. Includes safety, automatic transmission and transaxle, manual drive train, rear axle and drive shaft, and sub-frame assemblies.

AUT 133 Automatic Transmission/Transaxle Rebuilding /3 cr. hrs./ 7 periods (1 lec., 6 lab)
Principles and procedures for overhaul. Includes safety, automatic transmission rear wheel drive, automatic transaxle front wheel drive, and electronically controlled automatic transmission and transaxle.

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 safety, manual transmissions, front and rear axle assemblies, and transfer cases.

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.

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.

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.

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.

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.

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.

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.

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 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.

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.

AUT 242 Automotive Air Conditioning (AC) Retrofit /2 cr. hrs./ 3 periods (1 lec., 2 lab)
Prerequisite(s): AUT 142.
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.

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.

AUT 264 Engine Overhaul/Rebuild /3 cr. hrs./5 periods (1 lec., 4 lab)
Prerequisite(s): Field experience or five automotive classes, and consent of instructor.
Diagnosis, repair, and machining of engine components. Includes personal and environmental safety, overhead valve cylinder head, overhead cam cylinder head, engine block, crankshaft, flywheel, vibration damper, camshaft, bearings, timing mechanisms, connecting rod, and piston assembly.

AUT 265 Automotive Service Excellence (ASE) Advanced Engine Diagnosis (L1) Test Preparation /1 cr. hr./1 period (1 lec.)
Prerequisite(s): Current ASE - A8 Certification.
Review of the materials and procedures for the ASE L1 test. Includes safety and advanced engine performance diagnosis.

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 Diagnosis 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.

AUT 297 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.

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 security 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.

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.

AVIATION TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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, handtools, layout methods, materials, fasteners, repair techniques, parts fabrication, and corrosion prevention and control.

AVM 110 Aircraft Blueprint Reading /3 cr. hrs./3 periods (3 lec.)
Aircraft Blueprint Reading. Includes measurements, tools, drawing and lay-out equipment, views and projections, types of drawing and reference lines, drawing format, fastener code block, geometric construction and aircraft blueprint interpretation.

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.

AVM 114 Regulatory Requirements /3 cr. hrs./3 periods (3 lec.)
Outlines the procedures, manuals, regulations and documents used in performing repairs, installations or alterations on aircraft interiors, includes hazardous material regulations and procedures.

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.

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.

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.

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.

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.

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.

AVM 130 Aircraft Composite Materials and Repair /4 cr. hrs./8 periods (2 lec., 6 lab)
Prerequisite(s): Consent of instructor.
Construction and 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, assessment of repairs, and repair procedures.

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.

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.

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.

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.

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, cowling pylon and mounting systems and foreign object damage.

AVM 203 Structural Repair V /4 cr. hrs./8 periods (2 lec., 6 lab)
Prerequisite(s): AVM 151, 160.
Continuation of AVM 151. Includes jigging, shoring and alignment, corrosion and heat treatment and structural repair processes.

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.

AVM 210/210LB Advanced Composite Aircraft Repair I /5 cr. hrs./ 7 periods (4 lec., 3 lab.)
Prerequisite(s): AVM 101, 105, or 110.
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.

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.

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 trouble-shooting, hydraulic and pneumatic systems, aircraft instrumentation, communication and navigation systems, air conditioning and pressurization, fire detection and extinguishing systems, and aircraft fuel systems.

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.

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.

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.

AVM 297 Aviation Seminar /.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.

BIOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

BIO 100IN Biology Concepts /4 cr. hrs./6 periods (3 lec., 3 lab)
Basic principles and concepts of biology. Includes methods of scientific inquiry, cell structure and chemistry, metabolism, reproduction, genetics, evolution, and ecology.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

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.

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.

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.

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 distribution, adaptation, behavior and ecology. Also includes physical geography and geological principles of the region.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

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.

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.

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.

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. Emphasizes laboratory experience that utilizes current technologies in the study of nutritional biochemistry and biochemistry-based nutritional assessment.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.
Information: Same as FSN 127.

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.

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.

BIO 181IN General Biology I: (Majors) /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): Equivalent of one semester college chemistry. 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 scientific process; chemistry of the cell; cell structure, function, and reproduction; inheritance; molecular biology and biotechnology.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

BIO 182IN General Biology II: (Majors) /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): BIO 181 or consent of instructor.
Additional principles of structure and function of living things at molecular, cellular, organismic and higher levels of organization. Includes evolution, classification and diversity of organisms, structure and function of organisms, and ecology.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

BIO 183IN Marine Biology /3 cr. hrs./5 periods (2 lec., 3 lab)
Survey of marine environments and their biotic communities with emphasis on the natural history of marine organisms.
Information: Field trip required.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

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.

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.

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 a passing grade on the biology assessment test.
Structure and function of the body. Includes cells, tissues, membranes, and the integumentary, skeletal, muscular, and nervous systems.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

BIO 202IN Human Anatomy and Physiology II /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 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.

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.

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.

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.

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.

BIO 295 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.

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.

BUILDING AND CONSTRUCTION TECHNOLOGIES
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

BCT 103 Principles and Concepts for HVAC-R /4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): BCT 111, 112, 113, 114, 115, 116 or concurrent enrollment.
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.

BCT 104 Introduction to Equipment Maintenance /4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): BCT 111, 112, 113, 114, 115, 116 or concurrent enrollment.
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.

BCT 106 Soldering and Brazing for Building and Construction Technologies /4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): BCT 111, 112, 113, 114, 115, 116 or concurrent enrollment.
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.

BCT 108 Maintenance Management Concepts /3 cr. hrs./3 periods (3 lec.)
Development of maintenance strategies and maintenance functions for a building. Includes maintenance management, preventive maintenance, inventory and procurement, maintenance planning and scheduling, maintenance training and work cultures, predictive maintenance, reliability-centered maintenance, total productive maintenance, and maintenance return on investment.

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.

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.

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.

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.

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.

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.

BCT 118 Building and Construction Technologies Applied Mathematics /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): BCT 112 and satisfactory score on the mathematics assessment test at MAT 086 or higher.
Practical mathematics as applied to Building and Construction Technologies Includes calculator operations, problem solving techniques, estimating, English and metric measurement, graphs and tables, using data, straight lines and angles, two and three dimension shapes, ratio and proportion, scale drawings, signed numbers and vectors, scientific notation, precision accuracy and tolerance, powers and roots, formulas, and linear equations.

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.

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.

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.

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.

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.

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.

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.

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.

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 protec-tion of conductors, installing services, installing motors and transformers, and remote control and signaling circuits, and installing structured wiring in homes and offices.

BCT 145 Carpentry Framing /3 cr. hrs./5 periods (1 lec., 4 lab)

Prerequisite(s): BCT 111, 112, 113, 114, 115, 116 or equivalent experience.
Fundamentals of carpentry framing. Includes stud frame construction, tool safety standards and operations, carpentry tools, construction materials, site evaluation, foundation layout, framing materials and methods, floor framing methods, wall framing methods, roof framing methods, roof sheathing, and roof coverings.

BCT 146 Woodworking /3 cr. hrs./5 periods (1 lec., 4 lab)

Prerequisite(s): BCT 111, 112, 113, 114, 115, 116 or equivalent experience.
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.

BCT 150 Plumbing Basics /4 cr. hrs./6 periods (2 lec., 4 lab)

Prerequisite(s): BCT 111, 112, 113, 114, 115, 116.
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.

BCT 151 Design, Operation, and Maintenance of Building Systems I /3 cr. hrs./3 periods (3 lec.)

Introduction to the building systems. Includes basic construction materials, structural systems, building envelope, roofing systems, interiors, paints, fundamentals of heating, ventilating, air-conditioning, and refrigeration (HVAC-R), air circulation, cooling systems, heating systems, HVAC system, and plumbing.

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.

BCT 155 Potable Water Plumbing /4 cr. hrs./6 periods (2 lec., 4 lab)

Prerequisite(s): BCT 150.
Application of potable water plumbing procedures. Includes sources, distribution, and treatment of water, water piping materials and sizing, code requirements, water heaters, and water heater installation.

BCT 156 Drain Systems Plumbing /4 cr. hrs./6 periods (2 lec., 4 lab)

Prerequisite(s): BCT 150.
Application of building drainage systems. Includes installation practices, types of building drains, plan view of drainage systems, vent stacks, and types of venting.

BCT 172 Building and Construction Technologies Electrical I /4 cr. hrs./6 periods (2 lec., 4 lab)

Prerequisite(s): BCT 111, 112, 113, 114, 115, 116.
Concepts and procedures for building and construction electrical training. Includes safety, conduit bending, electrical theory, test equipment, print reading, and wiring applications.

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.

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.

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.

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.

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..

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.

BCT 202 Construction Management /3 cr. hrs./3 periods (3 lec.)
Construction management procedures. Includes analysis of the general provisions of contracts and review of material submittals.

BCT 204 Construction Surveying /3 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): BCT 118 or equivalent.
Principles and techniques of construction surveying. Includes taping, leveling, transit, contour and topographic mapping, and construction surveying.

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.

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.

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.

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.

BCT 242 Cross-Connection Control /3 cr. hrs./5 periods (1 lec., 4 lab)
Prerequisite(s): BCT 150, or ENV 102, 103.
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.
Information: Helps prepare students for the State Certification Exam.
Information: Same as ENV 242.

BCT 251 Design, Operation, and Maintenance of Building Systems II / 3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): BCT 151.
Continuation of BCT 151. Includes electricity and electrical systems, electrical systems operation and maintenance, lighting principles, lighting applications and maintenance, vertical transportation systems, maintenance and modernization of elevators, energy management, cleaning management and procedures, cleaning equipment and supplies, window cleaning and metal maintenance, pest control, and waste management, landscaping and parking, fire protection systems, building security, building operations and maintenance administration.

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.

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.

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.

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.

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.

BCT 280 International Building Code (IBC) I /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Field Experience.
Uniform Building Code for Building Technology applied to new construction and major remodeling. Includes building structures, types of building construction, fire protection systems, and means of egress.

BCT 281 International Building Code (IBC) II /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): BCT 280.
Continuation of BCT 280. Includes building accessibility, structural forces, electrical systems, mechanical systems, and plumbing systems.

BCT 282 International Mechanical Code (IMC) /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Field Experience.
Principles and regulations developed for the electrical, HVAC, pipe fitting, plumbing, sheet metal and facilities maintenance occupations. Includes terminology, ventilation air supply, exhaust systems, duct systems, combustion air, chimneys and vents, special fuel-burning and energy-utilizing equipment, boiler/water heaters, refrigeration, panel and hydronic panel heating system, fuel gas piping, special piping and storage systems, solar systems and workmanship standards.

BCT 283 International Plumbing Code (IPC) /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Field Experience.
Principles and regulations developed for the plumbing and facilities maintenance occupations. Includes terminology, plumbing fixtures, water heaters, water supply and distribution installation, sanitary drainage system installation, special waste, vent and trap requirements, storm drainage, and fuel piping.

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.

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.

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.

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.

**BCT 297 Building and Construction Technologies Seminar /
.25-4 cr. hrs./.25-16 periods (.25-4 lec., .25-12 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.

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.

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.

BUSINESS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

BUS 200 Business Law /3 cr. hrs./3 periods (3 lec.)
Principles and sources of business law. Includes nature of American law, scope and complexity of tort law, nature and principles of contract law, sale of goods under the Uniform Commercial Code, nature and principles of agency law, and business organizations.

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 set 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.

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.

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.

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.

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.

CHEMISTRY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

CHILD DEVELOPMENT ASSOCIATE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

CDA 171 Ages and Stages of Young Children: Prenatal Through Infancy /1 cr. hr./1 period (1 lec.)
Examination of the developmental stages prebirth through infancy. Includes general principles of development, cognitive and personality development, biological and environmental factors. Also includes a study of the period from conception to birth, the birthing process, developmental milestones, issues in infant care, and problems during infancy.

CDA 172 Ages and Stages of Young Children: Toddlerhood /1 cr. hr./ 1 period (1 lec.)
Examination of the developmental stages of toddlers. Includes physical and motor development, language and cognitive development, and social development. Also includes issues in toddler care and developmental health issues (i.e., speech, hearing, illness).

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

**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.

**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.

**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.

**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.

**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.

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.

**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.

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. Includes the links between intellectual development and mathematical concepts learning. Also includes developing math concepts, teaching problem-solving, and exploring the strands of mathematics.

**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.

**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.

**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.

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.

**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.

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.

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.

CHINESE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

COMMUNITY DEVELOPMENT EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

**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.

**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.

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.

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 a information database, running effective meetings, creating by-laws, officer training, and publishing a newsletter.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 intervention, communication and victimology, culture and values assessment, suicide, sexual assault, child victims, and domestic violence. Also includes responding to the needs of crime victims, witnesses, and their families.
Information: Course is sponsored by the Pima County Attorney's Office.

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.

COMPUTER AIDED DESIGN/DRAFTING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

CAD 101A Computer Aided Drafting Fundamentals: Module A /2 cr. hrs./3 periods (2 lec., 1 lab)
Two-dimensional computer aided and traditional drafting concepts and techniques. Includes computer aided drafting procedures and methods, electronic file management, hard copy production, and freehand sketching and visualization.
Information: For individuals with no computer and/or drafting experience.
Information: CAD 101A and 101B together constitute CAD 101.

CAD 101B Computer Aided Drafting Fundamentals: Module B /2 cr. hrs./3 periods (1 lec., 2 lab)
Prerequisite(s): CAD 101A.
Continuation of CAD 101A. Includes freehand sketching and visualization, industry standards, scale and dimensioning, and final project.
Information: CAD 101A and 101B together constitute CAD 101.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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).

CAD 158 Interior Design/Drafting /3 cr. hrs./5 periods (2 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, interior design CADD skills, block functions, Internet applications, three dimensional design, presentation drawings, building systems, working drawings, and working drawing coordination.

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, intermediate 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.

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.

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.

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 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.

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.

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.

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.

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).

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 drawing coordination, special construction applications, and 3D modeling.

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.

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).

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/elecro-mechanical models. Includes solid modeling and parametric design fundamentals and standards, design applications, mass property calculations, and hard copy techniques and procedures.

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.

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.

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.

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.

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.

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).

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.

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.

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.

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.

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.

COMPUTER INFORMATION SYSTEMS
For courses numbered 098, 198, 298, see "Topics Courses" in index.

CIS 100 Introduction to Computers /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): MAT 092 or concurrent enrollment.
Introduction to computer information systems. Includes components of a computer system, problem solving and program development concepts, system development concepts, application of information technology and computer ethics and security. Also includes applied problem solving using a spreadsheet tool such as MS Excel and program development using programming tools such as QBASIC and HTML.

CIS 102 Software Development Tools /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CSA 101.
Use of application software as a tool for program development. Includes Windows, word processing, spreadsheets, multimedia presentations, and the Internet. Also includes the integration capabilities of the software tools listed.
Information: For Computer Information Systems Majors.

CIS 103 Microsoft Windows XP Professional Administration /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): CIS 102 or consent of instructor.
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.

CIS 106 Database Concepts and Applications /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): CIS 102.
Introduction to the database concepts and applications in the microcomputer environment. Includes design, develop, populate, and troubleshoot using current relational database management system software. Also includes developing custom user interfaces using basic and advanced queries, forms, and reports, creating macros and introduction to database programming using programming languages such as Structure Query Language (SQL) and Visual Basic for Applications (VBA).
Information: For Computer Information Systems Majors.

CIS 119 Network Essentials /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CIS 103.
Comprehensive introduction to computer networks and data communications. Includes LANs, MANs and WANs, centralized versus distributed network services, transmission media and connections (coax, fiber-optic, twisted pair, etc.), network software, and public data networks such as the telephone network and Internet. Also includes network protocols and the OSI model, popular protocol suites, and network management.

CIS 121 WWW Publishing and Support /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CIS 129.
Recommended: Consult instructor for alternative prerequisite(s).
Introduction to constructing Web pages containing forms, image maps, tables, frames, scripting and dynamic HTML. Also includes embedding multi-media into a page, Cascading Style Sheets, effective presentations, and design, and CGI scripting.

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.

CIS 131 Programming and Problem Solving II /5 cr. hrs./5 periods (5 lec.)
Prerequisite(s): CIS 129.
Continuation of CIS 129. The student will be developing software using multi-dimensional arrays with structured elements, file handling of both text and binary typed files, sorting and searching models. Requirements for planning, good coding practices, and documentation. Applications include both numerical and business orientated problems.
Information: Programming assignments will use the TURBO PASCAL language.

CIS 136 Microcomputer Components /3 cr. hrs./3 periods (3 lec.)
Primary components of common microcomputer systems, monitors, hard and floppy drives, printers, accessory boards, and cables. Includes procedures of upgrading a basic system, the use of interfacing equipment, trouble-shooting techniques and simple maintenance practices.

CIS 137 Introduction to the UNIX Operating System /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Consent of instructor.
Principles and tools of the UNIX operating system. Includes utilities, file structure, text editors, tools, documentation, networking, and the comparison and usage of different shells.

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.

CIS 140 FORTRAN Programming /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CIS 100, and MAT 092 or satisfactory score on math assessment test.
Techniques of module programming using FORTRAN 90 constructs. Includes design, error-trapping, on-line debugging, objects, testing procedures, and hierarchical development concepts. Also includes using the DOS and/or Windows environment.

CIS 170 Cisco I: Networking Fundamentals /5 cr. hrs./5 periods (5 lec.)
Prerequisite(s): CIS 136.
Recommended: Consult instructor for alternative prerequisite.
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.

CIS 171 Cisco II: Networking Router Technologies /5 cr. hrs./5 periods (5 lec.)
Prerequisite(s): CIS 170.
Recommended: Consult instructor for alternative prerequisite.
Knowledge of skills to install, configure, customize, maintain the troubleshoot Cisco routers and components. Includes preparation for Cisco certification examination.

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.
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.

CIS 173 Cisco IV: Project Based Learning /5 cr. hrs./5 periods (5 lec.)
Prerequisite(s): CIS 172.
Recommended: Consult instructor for alternative prerequisite.
Design and configuration of advanced wide area network (WAN) projects using Cisco IOS command set. Includes preparation for Cisco certification examination.

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 prerequisites.
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.

CIS 181 Introduction to Oracle Designer /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): CIS 180.
Recommended: Consult instructor for alternative prerequisites.
Task-based essential skills for using Oracle Designer to develop application systems. Includes recording business requirements, refining the data and application design, and generating database objects and simple Oracle Developer and WebServer applications, and a single, small-scale Oracle Designer project. Also includes the flow of information through the Repository, and the default behavior of the Oracle Designer toolset.

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.

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.

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.

CIS 204 Spreadsheet Applications /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): CIS 102 and 129.
Advanced concepts in electronic spreadsheet applications. Includes problem solving and using hands-on solutions relating to spreadsheet software. Also includes graphing, database maintenance, analysis and design of large spreadsheets, linking several spreadsheets, and programming spreadsheet macros with an appropriate programming language such as Visual Basic for Applications.

CIS 206 Database Development /5 cr. hrs./5 periods (5 lec.)
Prerequisite(s): CIS 106. 129, 280.
Recommended: Consult instructor for alternative prerequisite(s).
Introduction to database concepts and terminology. Includes the relational database model, database design, the role of Structured Query Language (SQL), data modeling, and normalization of database tables. Also includes the design, creation, and maintenance of a database system.

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.

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.

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.

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 Active Directory directory services. Includes active directory structure, active Directory directory services, domain name system (DNS), group policy implementation, user accounts, software development, group policy security, and administration of active directory objects.

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.

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 comparison of Linux distributions and installation of Linux. Also covers network configuration including /etc/inetd.conf, Apache, SAMBA, FTP and NFS and addresses security issues associated with the Internet.

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.

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.

CIS 238 Integrated Software Projects /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): CIS 106, 204.
Utilization of the integration features of an application software suite such as Microsoft Office. Includes presentation of problems in various situations requiring the use of problem-solving, critical-thinking, and creative-thinking skills. Also includes hands-on computer skill to design a solution and use a software suite to complete each of the projects.

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.

CIS 250 Introduction to Assembly Language /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CIS 131.
Recommended: 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.

CIS 254 SQL Server Administration /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): CIS 206.
Installation and configuration of the Microsoft SQL Server database management system. Includes skills to administer and troubleshoot the system.

CIS 255 Database Administration with Oracle /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): CIS 181.
Designed to develop a conceptual understanding of the Oracle database architecture and a firm foundation in basic administrative tasks. Includes reinforced learning via structured hands-on practice.

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.

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.

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, graphs.

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.

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.

CIS 275 Advanced 80x86 Assembly Language /4 cr. hrs./6 periods (4 lec., 2 lab)
Prerequisite(s): CIS 250.
Advanced 80x86 assembly programming techniques. Includes macros, file I/O, conditional assembly, high level language interfacing, direct disk accessing, hardware and software interrupts, and TSR's.

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.

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.

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 206.
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.

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.

CIS 282 Client/Server Programming Using SQL Server /4 cr. hrs./ 4 periods (4 lec.)
Recommended: Consult instructor for prerequisites suited to student success.
Advanced client/server programming using SQL Server. Includes manipulation of rational databases through client/server activities and tasks: writing stored server-slide SQL procedures, performing advanced queries, and using the Enterprise Manager, Data Transformation services, and client-side Visual Basic in utilizing and setting up connections with the server-side interface. Also includes database design standards by employing E-R diagrams and database normalization.

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.

CIS 289 Database Systems Design and Management /5 cr. hrs./5 periods (5 lec.)
Prerequisite(s): CIS 280 and a high level language.
Introduction to the design and use of a database system. Includes data structures, file organizations, database models, program/query development in Structured Query Language (SQL), database administration and a top-down, systematic approach to developing a relational database and defining requirements as entities, attributes, and relationships. Also includes other database models such as hierarchical, network, and object-oriented.

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.

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.

COMPUTER SOFTWARE APPLICATIONS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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).

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 Clipart, drawing features, appearance, and pictures and slides.
Information: CSA 130A, 130B, and 130C together constitute CSA 130.

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.

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.

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.

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.

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.

CSA 152 Internet Browser: Microsoft Explorer /2 cr. hrs./3 periods (1 lec., 2 lab)
Fundamentals of Microsoft Internet Explorer. Includes customizing the browser, browsing the Web, printing and saving Web pages, security features, using Internet Explorer with other applications, and advanced features.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

COOPERATIVE EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

CED 090 Field Experience in Workplace Readiness /3 cr. hrs./7 periods (2 lec., 5 lab)
Prerequisite(s): Consent of instructor.
Introduction to the workplace for high school students. Includes teamwork, problem solving, self-management, diversity, communication, and ethics.

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.

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 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.

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.

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 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.

COURT SUPPORT SERVICES

For courses numbered 098, 198, 298, see "Topics Courses" in index.

CSS 101 Survey of Court Systems I /3 cr. hrs./3 periods (3 lec.)
Overview of the major structures and organization of the American judicial system, and a comprehensive overview of the roles and purposes of distinct jurisdictions, and the role of court support personnel in these courts. Includes an examination of the basic professional expertise required in the support of court operations. Also includes an examination of the roles of the major participants within the court milieu, and the extent of support services required of these participants.

CSS 111 Introduction to the United States Judicial System /1 cr. hr. /2 periods (1 lec., 1 lab)
Major structures and organization of the American judicial system. Includes an emphasis on the Arizona courts. Also includes a comprehensive overview of the roles and purposes of distinct jurisdictions, and the role of court support personnel in these courts.

CSS 112 Role of Court Support Staff in the United States Judicial System /1 cr. hr./2 periods (1 lec., 1 lab)
Roles of the major participants within the court milieu. Includes organizational structure of courts, role of court support staff in the judicial process, daily operation of the courts, and ethics.

CSS 113 Case Management Concepts /1 cr. hr./2 periods (1 lec., 1 lab)
Basic concepts of case management used in contemporary courts. Includes an examination of the basic professional expertise required in the support of court operations.

CSS 114 Jury Management /1 cr. hr./2 periods (1 lec., 1 lab)
Overview of how individuals are selected for potential jury service. Includes an examination of the basic managerial expertise needed in jury management. Also includes an examination of the role of technology in jury management.

CSS 115 Technology in the Courts /1 cr. hr./2 periods (1 lec., 1 lab)
Examination of technology management to enhance the capability and efficiency of the court system. Includes an analysis of technology applied to logistical support, jury management, cash management, courtroom support and case processing.

CSS 116 Introduction to the Tribal Courts /3 cr. hr./3 periods (3 lec.)
Examination of the roles and purposes of tribal courts. Includes an overview of the major functions, structure and organization of Tribal Courts, and the role of the tribal court in the total American judicial system. Also includes a comprehensive overview of the roles and purposes of tribal court jurisdictions, the role of tribal court advocates and court support personnel in these courts and a survey of the structure of the Arizona judicial system.

CSS 117 Alternative Dispute Resolution /1 cr. hr./2 periods (1 lec., 1 lab)
Theory and practice of Alternative Dispute Resolution. Includes an examination of Alternative Dispute Resolution as a process to expedite case processing. Also includes strategies and tactics involved in Alternative Dispute Resolution.

CSS 120 Introduction to Tribal Court Advocacy /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CSS 116.
Introduction to the role and purpose of tribal court advocates. Includes an examination of tribal court jurisdictions and the role of tribal court advocates in these courts. Also includes the major functions, structure, and organization of Tribal Courts including the role of the tribal court advocate, a survey of the structure of the Arizona judicial system, and the role of the tribal court in the Arizona judicial system.

CSS 201 Survey of Court Systems II /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CSS 101.
Overview of the role of court support personnel in the total operation of the American judicial system. Includes an examination of the basic managerial expertise needed to support the complex operation of the courts. Also includes an examination of technology management to expand the capacity of the court system and improve the performance of the courts. Also includes an analysis of the areas of responsibility including logistical support, staff relations, jury management, cash management, courtroom support, customer service, and case processing.

CSS 210 Judicial System Communication /3 cr. hrs./3 periods (3 lec.)
Introduction to the writing and speaking skills needed in the court support fields. Includes practice and application of these skills to court specific reports, narratives and forms. Also includes preparation and presentation of written reports, oral presentations, group projects, and technical presentations. Also includes court specific terminology, form completion and other communication skills required by the court support areas.

CSS 220 Issues in Tribal Court Advocacy /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): CSS 116.
Overview of the major issues incorporated in the study of tribal court advocacy. Includes the study of issues essential to tribal governments in developing and strengthening their systems of justice. Also includes the re-examination of the role of the tribal court advocate in the most essential issues involved in tribal court sovereignty.

CSS 290 Court Support Services Field Experiences /3 cr. hrs./15 periods (15 lab)
Prerequisite(s): CSS 101.
Participation in judicial system placements to acquire practical experiences in the court support areas. Includes seminars conducted to discuss the field experiences in relation to court support services. Also includes an analysis of the host agencies roles and purposes in the total judicial process.

CREDIT UNION

See FINANCE

CRIME SCENE MANAGEMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

CSM 104 Fingerprint Classification /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.

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.

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.

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.

CULINARY ARTS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

CUL 140 Culinary Principles I /2 cr. hrs./2 periods (2 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.

CUL 150 Garde Manger I /2 cr. hrs./2 periods (2 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.

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 bakeshop 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.

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.

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.

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.

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.

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.

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.

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.

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.

CUL 250 Garde Manger II /2 cr. hrs./2 periods (2 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.

CUL 260 Bakery and Pastry Production II /2 cr. hrs./2 periods (2 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.

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.

DANCE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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 or proper body alignment and placement.

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 foxtrot, waltz, swing, tango, cha cha, rumba and mambo. Also includes skill development in posture, balance, control, flexibility, endurance and coordination.

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.

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.

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.

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.

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.

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.

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.

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.

DENTAL ASSISTING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.
Biosciences as related to the oral cavity. Includes anatomy, physiology, histology, microbiology, infection control, oral pathology, and nutrition as each affects total dental health.

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.

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.

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.

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.

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.

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.

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.

DENTAL HYGIENE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

DHE 101/101LB Pre-Clinical Dental Hygiene /4 cr. hrs./8 periods (2 lec., 6 lab)
Prerequisite(s): Admission to Dental Hygiene Program.
Dental hygiene clinical procedures. Includes asepsis, infection control, gathering and evaluating patient medical and dental histories, legal and ethical considerations, body mechanics, intra and extra oral exams, and instrumentation. Also includes a laboratory involving practicing dental hygiene procedures on student partners.

DHE 104/104LB Dental and Oral Morphology /1 cr. hr./3 periods (1 lec., 2 lab)
Prerequisite(s): Admission to Dental Hygiene Program.
Form and function of primary and permanent dentition. Includes observation, identification and recording of normal and abnormal dentition.

DHE 107 Oral Embryology and Histology /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): Admission to Dental Hygiene Program.
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.

DHE 116/116LB Oral Radiography /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): DHE 101, 104, 107, 209.
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.

DHE 119 Periodontology /1 cr. hr./1 period (1 lec.)
Prerequisite(s): DHE 101, 104, 107, 209.
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.

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.
Introduction to diseases of the mouth and surrounding structures. Includes diagnosis and etiology, oral manifestation of generalized disease, and neurological conditions.

DHE 121 Nutrition and Preventive Dentistry /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Admission to Dental Hygiene Program.
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.

DHE 190/190LB Clinical Dental Hygiene I /4 cr. hrs./8 periods (2 lec., 6 lab)
Prerequisite(s): DHE 101, 104, 107, 121.
Application of dental hygiene skills with a variety of clinical patients with simple dental hygiene care plans. Includes an introduction to alternative instrumentation procedures and clinical application of chemotherapeutics.

DHE 191/191LB Clinical Dental Hygiene II /3 cr. hrs./7 periods (1 lec., 6 lab)
Prerequisite(s): Completion of first year of Dental Hygiene Program.
Continuation of DHE 190. Includes application of dental hygiene skills with a variety of clinical patients.

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.

DHE 204/204LB Dental Materials /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): Completion of first year of Dental Hygiene Program.
Chemical and physical properties of dental materials used in dental practice. Includes materials used in preventive, restorative, and prosthetic procedures.

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.

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.

DHE 209/209LB Computers and Practice Management /2 cr. hrs./4 periods (1 lec., 3 lab)
Prerequisite(s): Admission to Dental Hygiene Program.
Introduction to basic computer skills and applications used in dentistry. Includes an overview of computer operations and applications in dentistry. Also includes elements of dental hygiene practice management, records management, time management, periodontal maintenance systems, and clinical practice applications.

DHE 213/213LB Advanced Periodontal Services /2 cr. hrs./4 periods (1 lec., 3 lab)
Prerequisite(s): DHE 120, 207, 290.
Application of diagnosis, measurement and treatment of advanced periodontal patients. Includes deep scaling, irrigation and home care education for patients.

DHE 216 Community and Dental Health Education /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): DHE 120, 207, 290.
Public health dentistry and modalities of dental health education. Includes literature reviews of public health issues with extramural community experiences.

DHE 290/290LB Clinical Dental Hygiene III /5 cr. hrs./13 periods (1 lec., 12 lab)
Prerequisite(s): Completion of first year of Dental Hygiene Program.
Practice of dental hygiene skills with difficult clinical patients and proce-dures. Includes beginning treatment planning.

DHE 291/291LB Clinical Dental Hygiene IV /4 cr. hrs./10 periods (1 lec., 9 lab)
Prerequisite(s): DHE 120, 207, 290.
Continuation of DHE 290. Includes advanced treatment planning, applica-tion of skills for difficult and special needs patients and extramural rota-tions to community facilities.

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.

DENTAL LABORATORY TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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 con-struction. 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.

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.

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 den-tures 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.

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 sculp-tured from wax ivorine blocks and set up to occlusion. Upper and lower partial frame structures are constructed in cast chromium-cobalt alloy.

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; fab-rication of dies of inlays and abutments; and repair and relining of dentures.

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 appli-ances. Includes construction utilizing wrought wire and/or cast metal frames as retentive devices and the processing of acrylic to form final appliances.

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.

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 aes-thetics in the design of fixed bridgework; handling of wax patterns, invest-ments, casting techniques and making dies from impressions; and tech-niques in waxing, investing, casting inlays, three-quarter crown, full crown and veneers. Tooth carving techniques taught in previous semester are used.

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.

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.

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 phys-ical properties of gold and chromium-cobalt alloys and their working qual-ities. Also includes designs and principles used in the construction of removable bridgework.

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.

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.

DIGITAL ARTS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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 graph-ic design. Includes overview of drawing software, thumbnails, objects in perspective, media, drawing techniques, composition drawing, drawing styles, and professional environment.

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 per-ception, meaning of colors, media characteristics, drawing software, tra-ditional drawing methods, and professional environment. Also includes uti-lizing wood, food, paper, metallic, landscape, and cloth items.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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, scoreboard 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.

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 additional to course and lab fees.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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, duotomes, 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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, animation, and surfacing techniques, advanced lighting and camera effects, and kinematics and contortions.

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.

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.

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.

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.

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.

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.

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.

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.

DAR 268 Adobe After Affects 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

DAR 290 Digital Arts Field Experience/Internship /6 cr. hrs./ 30 periods (30 lab)
Prerequisite(s): Consent of instructor.
Work environment in Digital Arts. Includes communication, professional development, employment, and field experience.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

DAR 297 Digital Arts Seminar /.25-4 cr. hrs./.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.

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.

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.

EARLY CHILDHOOD EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

ECE 107 Human Development and Relations /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): REA 112 or concurrent enrollment.
Analysis of the elements which affect growth and development throughout the life span. Includes hereditary, familial, environmental, and cultural influences.

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.

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.

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.

ECE 112 Music/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.

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.

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.

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.

ECE 124 Math/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.

ECE 125 Nutrition for the Young Child /3 cr. hrs./5 periods (2 lec., 3 lab)
In-depth study of the nutritional needs of children. Emphasis on the total basic nutrient requirements for optimal health and development.

ECE 126 Teaching Techniques /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): REA 112 or concurrent enrollment, and WRT 100.
Introduction to theory and application of guidance techniques and classroom management. Includes observing, recording, and interpreting behavior, behavior modification, cultural influences, and development of positive attitudes and self concept. Also includes supervised field experience.

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.

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.

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.

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.

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.

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.

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.

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.

ECONOMICS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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, cost-benefit analysis, profit maximization, production functions and costs, competition and market structures, 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.

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, household income, business ownership, cost-benefit analysis, profit maximization, production functions and costs, competition and market structures, government in the market economy, labor markets, and income distribution.

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, and the assessment of goals, tools, and policies of macroeconomics.

EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

EDU 102 Dimensions of Multicultural Education /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Prerequisite(s): Consent of instructor.
Basic concepts of multicultural education with emphasis on race, ethnicity, gender, class, age, disability, and religion. Includes demographic differences among individuals, concepts and experiences of stereotyping and discrimination, and origins of stereotypes.

EDU 103 Teaching Students with Attention Deficit Disorder/Attention Deficit Hyper-activity Disorder (ADD/ADHD) /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Prerequisite(s): Consent of instructor.
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.

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.

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.

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.

EDU 114 Teaching Mathematics Through Problem Solving II for K-8 /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): EDU 104.
Advanced concepts for the teaching of math in grades kindergarten through eighth grade (K-8). Focuses on strengthening an understanding of how to teach math through problem solving and on the sequence of concepts and skills for each strand of the K-8 curriculum.

EDU 118 Literacy, Literature, and Learning in the Bilingual Classroom /1 cr. hr./1 period (1 lec.)
Teaching techniques using literature in the bilingual classroom. Includes strategic thinking skills, teaching themes, questioning, creative thinking, problem-solving strategies, and teaching skills through literature.

EDU 124 Teaching Mathematics Through Problem Solving III for K-8 /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): Consent of instructor.
Synthesizing the content presented in Math through Problem Solving I and II. Includes assessment procedures, review of probability and functions, developing instructional units, integrating writing as a vehicle for learning and assessment, concepts of ratio, scale, measurement and proportional reasoning, and synthesizing experiences and ideas.

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.

EDU 126 Introduction to Multimedia /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Consent of instructor.
Comprehensive introduction to multimedia design and production. Includes microcomputer basics, project planning and design principles for multimedia as well as basic digital graphics, audio, and video editing. Students will develop their own multimedia projects using Microsoft PowerPoint, the World Wide Web (HTML), and Asymetrix ToolBook.

EDU 127 Introduction to Asymetrix ToolBook /.5-3 cr. hrs./.5-3 periods (.5-3 lec.)
Prerequisite(s): Consent of instructor.
Introduction to the Asymetrix ToolBook multimedia authoring system. Includes overall multimedia project design, creating and manipulating ToolBook Objects, creating animations, importing graphics, sound, and video files, as well as an introduction to OpenScript for customizing ToolBook applications.

EDU 128 Teaching with the Internet /1 cr. hr./1.5 periods (1 lec., .5 lab)
Prerequisite(s): Consent of instructor.
Methods of integrating Internet resources into the classroom. Includes Internet overview, World Wide Web (WWW) catalogs and search engines, integrating WWW resources into the curriculum, lesson plan, project and field trip sites, educational news sources, special interest sites, library catalogs, magazine and reference databases, filtering and copyright issues, and citing electronic resources.

EDU 129 How to Write Competitive Grant Proposals /.5-3 cr. hrs./.5-3 periods (.5-3 lec.)
Prerequisite(s): Consent of instructor.
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.

EDU 130 Legal Issues in Education /.5-3 cr. hrs./.5-3 periods (.5-3 lec.)
Prerequisite(s): Consent of instructor.
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.

EDU 131 Latin American Art for Teachers /1 cr. hr./1 period (1 lec.)
Latin American history, language, art, and architecture for K-16 instructors. Includes current events, language and customs, and how they are related to the art of Latin American cultural awareness through art. Also includes an emphasis on methods of integration for lesson plans.

EDU 132 Instructional Applications of the Internet /1 cr. hr./1.5 periods (1 lec., .5 lab)
Prerequisite(s): Consent of instructor.
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 communications, and new technologies.

EDU 133 Cooperating Teachers: Mentoring Student Teachers /1 cr. hr./1 period (1 lec.)
Prerequisite(s): Consent of instructor.
Techniques to prepare classroom teachers to mentor student teachers. Includes phases of student teaching, student teaching roles and characteristics, responsibilities, beliefs and philosophy, adult learners, and issues and problems.

EDU 134 Survival Strategies for the Substitute Teacher /1 cr. hr./1 period (1 lec.)
Prerequisite(s): Consent of instructor.
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.

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.

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.

EDU 150 Teaching Critical and Creative Thinking /3 cr. hrs./3 periods (3 lec.)
Background, theory and techniques of instruction to facilitate the development of critical and creative thinking skills. Includes locating prepared materials, developing content-specific exercises on various skill levels, integrating skills into general course content, and application to various teaching fields.

EDU 151 Teaching Developmental Education /3 cr. hrs./3 periods (3 lec.)
Teaching techniques for instructors of developmental education courses. Includes background theory and instructional techniques to support under prepared students by creating an environment that encourages critical thinking and responds to differences in learning style, age, gender, and culture. Also includes administrative issues affecting the delivery of developmental education.

EDU 161 The Arizona Community College: A Learning Instutition / 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.

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.

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.

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.

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.

EDU 171 Making Effective Presentations /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Introduction to making effective oral presentations to large and small groups. Includes overcoming anxiety and organizing, preparing and delivering presentations. Also includes improving verbal and non-verbal communication skills, and using visual materials effectively.

EDU 172 Constructing a Course Syllabus /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Design and construction of syllabus for handout in a classroom situation. Includes reasons for preparing a syllabus, benefits and characteristics of a good syllabus, general suggestions, required and recommended elements, suggested course policies, and the use of a standard syllabus format/template.

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.

EDU 174 Overview of the Arizona Community College /.25 cr. hr./.25 period (.25 lec.)
Brief overview of the history and philosophy of the Community College movement in the United States and in the State of Arizona. Includes a brief review of the structure, finance, governance and organization of Arizona's Community Colleges, their students, curricula, instruction, facilities, and current issues facing these colleges.

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.

EDU 176 Andragogy: Teaching Adult Students /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Techniques for teaching adult students. Includes characteristics of adult learning, motivating factors, curriculum considerations, instructional strategies, and effective classroom management techniques.

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.

EDU 178 Alternative Instructional Delivery /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Designing and delivering instruction to meet the needs of a diverse student body using available technology. Includes student diversity factors, alternative time frames, and alternative delivery systems.

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.

EDU 180 Teaching an Independent Learning Package Course /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Overview of the information needed by those who are to be the instructor of record for an existing Independent Learning Package (ILP). Includes an overview of an ILP, rationale and program information, and faculty requirements and responsibilities. Also includes the development and critique of required instructional materials.

EDU 181 Teaching a Telecourse /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Overview of the information needed by those who are to be the instructor of record for a telecourse. Includes rationale and information about this distance delivery system, faculty requirements and responsibilities. Also includes the development and critique of required instructional materials.

EDU 182 Academic Mentoring /.25-1 cr. hr./.25-1 period (.25-1 lec.)
Introduction to the process of mentoring in an academic setting. Includes overview of the concept, roles and responsibilities of mentors and mentees, suggestions for building useful and successful relationships. Also includes mentoring specific academic projects such as syllabus construction, instructional design, making presentation assessing learners preparing a teaching portfolio, and applying for an academic position.

EDU 200 Introduction to Education /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): REA 112 or concurrent enrollment, and WRT 100.
Survey of historical and philosophical development in education. Includes current theories, multi-cultural education, and the role of local, state, and national government. Also includes supervised exposure to educational settings. The purpose of this course is to provide a realistic view of the teaching profession in a variety of educational settings in order to provide a basis for making the decision to pursue teaching as a career.

EDU 201 Balanced Literacy /1 cr. hr./1 period (1 lec.)
Introduction to balanced teaching strategies for reading and writing. Includes lesson plans and review, balanced literacy, mini-lesson, teacher assessment, resource books for the teacher, and benefits of balanced literacy.

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.

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.

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.

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.

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, rule of emotions in learning, how the brain functions best, and mind and brain principles.

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.

EDU 226 Balanced Literacy Instruction /3 cr. hrs./3 periods (3 lec.)
Phonemic awareness, phonics, and explicit decoding strategies to strengthen balanced literacy instruction. Includes elements of a balanced literacy program, effective assessment in a balanced program, skills and strategy instruction in a balanced classroom, and small group instruction.

EDU 226A Balanced Literacy Instruction: Module A /1 cr. hr./1 period (1 lec.)
Introduces elements of a balanced literacy program. Includes current research, assessment in a balanced program, and small and large group instruction.
Information: EDU 226A, 226B, and 226C together constitute EDU 226.

EDU 226B Balanced Literacy: Module B /1 cr. hr./1 period (1 lec.)
Continuation of balanced literacy instruction. Includes a focus on a reading program and related research elements of balanced reading program, role of phonemic awareness, and intervention models.
Information: EDU 226A, 226B, and 226C together constitute EDU 226.

EDU 226C Balanced Literacy: Module C /1 cr. hr./1 period (1 lec.)
Continuation of balanced literacy instruction. Emphasis includes a final review of current research, the role of phonic skills and decoding strategies, intervention models for struggling readers, and the role of sight vocabulary.
Information: EDU 226A, 226B, and 226C together constitute EDU 226.

EDU 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.

EDU 228 Integrating Story Telling /1 cr. hr./1 period (1 lec.)
Techniques for integrating storytelling and how to verbalize primary text to children to help them achieve a full understanding of the text. Includes philosophy, theories, models of storytelling, and the process to develop an integrated curriculum.

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.

EDU 230 Creating an Integrated Curriculum /.25-3 cr. hrs. (.25-3 lec.)
Techniques for creating an integrated curriculum Includes philosophy, theories, models of an integrated curriculum, and the process to develop the curriculum.

EDU 231 Native American and Southwestern Children's Literature /.25-3 cr. hrs./.25-3 periods (.25-3 lec.)
Introduction to the various genres of Native American and Southwestern children's literature. Includes an introduction to the people and culture of the southwest through the use of children's texts, criteria for evaluating children's books, searching the Internet for Native American sites and reviews of Southwestern children's books, and developing a bibliography of regional and Native American children.

EDU 234 Behavior Management and Interventions /1 cr. hr./2.5 periods (.5 lec., 1.5 lab)
Prerequisite(s): Consent of instructor.
Techniques for the integration and inclusion of students with special needs into the classroom, for substitute teachers. Includes the definition of inclusion, critical factors of inclusion, philosophy of mainstreaming and inclusion, Federal Law P.S. 94-142 and Section 504, teachers responsibilities of special needs students, performance levels and modifying instructional materials, grading and evaluation procedures, collaboration and consultation, creating an inclusive classroom, and behavior interventions.

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.

EDU 250 Teaching Science /3 cr. hrs./3 periods (3 lec.)
Introduction to secondary school science teaching. Includes the nature of science, both the theoretical and practical underpinnings of teaching science in secondary schools, and the role of standards in K-12 science education. Also includes observations and focused tasks in local middle and high school science classrooms.
Information: Students need to have completed eight (8) science credits in college-level courses for science majors.

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.

EDU 262 Assistive Technology for Individuals with Disabilities /3 cr. hrs. /3 periods (3 lec.)
Prerequisite(s): EDU 261.
Study of assitive 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.

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.

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.

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.

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.

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.

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.

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.

EDU 276 Balanced Literacy /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Admission to the advanced certification program in teacher education.
Introduction to literacy development for pre-service teachers for pre-kindergarten through middle school children. Includes for pre-k through 3rd grade teachers: learning environments, assessment, selection and use of text, strategies and high quality classroom instruction. Includes for 4th through 8th grade teachers: independent reading, guided reading, literature study, strategies and high quality classroom instruction.

EDU 277 Phonics Instruction in the Balance Literacy Setting /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Admission to the advanced certification 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, learning about letters and words, and thinking comprehensively.

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.

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.

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.

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,

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.

EDU 283 Math Methods in the Secondary Classroom /3 cr. hrs./3 periods (3 lec.)
Prerequisite(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.

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.

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.

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.

EDUCATIONAL TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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 communications, 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.

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.

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.

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.

ELECTRICAL UTILITIES TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

EMERGENCY MEDICAL TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

EMT 070 Basic Cardiac Life Support /.5 cr. hr./.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.

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 a current cardiopulmonary resuscitation (CPR) card at the Healthcare Provider level.
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.

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.

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.

EMT 159 Cardiopulmonary Resuscitation: Healthcare Provider / .5 cr. hr./.75 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.

EMT 170 Operations /1 cr. hr./1 period (1 lec.)
Prerequisite(s): Acceptance into the Paramedic 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.

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.

EMT 201 Pre-Hospital Environment 3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Introduction to the Paramedic career field. Includes roles and responsibilities, EMS components and communications, medical/legal considerations, and rescue/vehicle extrication. Also includes major incident response and stress management.

EMT 202 Paramedic Preparation /4.5 cr. hrs./5 periods (4 lec., 1 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
Foundations of skills and principles in preparing to be a paramedic. Includes medical terminology and the human body structure. Also includes phases of pre-hospital assessment, scene size-up, and primary assessment.

EMT 203 Airway and Ventilation /2 cr. hrs./2.5 periods (1.5 lec., 1 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
Techniques for life support in the pre-hospital setting. Includes airway management, oxygen therapy, respiratory system, pathophysiology and assessment.

EMT 204 Shock and Shock Management /1 cr. hr./1 period (1 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Elements of shock and development of shock management techniques. Includes anatomy and physiology of body systems affected by shock, and shock components.

EMT 205 Advanced Life Support Pharmacology /5.5 cr. hrs./6 periods (5 lec., 1 lab)
Prerequisite(s): Acceptance into the Paramedic 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.

EMT 206 Pathophysiology of Traumatic Injuries I /1.5 cr. hrs./1.5 periods (1.5 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Introduction to traumatic injury and intervention in the pre-hospital setting. Includes facts about head, neck, and spine injuries, anatomy and physiology, assessment and management. Also includes basic trauma facts, triage protocols, kinetics, and different types of trauma.

EMT 207 Pathophysiology of Traumatic Injuries II /1.5 cr. hrs./1.5 periods (1.5 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Continuation of EMT 206. Emphasis on soft tissues and burn injuries. Includes anatomy and physiology, patient assessment, and pathophysiology of injuries. Also includes techniques of management and specific injuries.

EMT 208 Pulmonary Emergencies /1.5 cr. hrs./1.5 periods (1.5 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Techniques for life support in the pre-hospital setting. Includes airway management and the respiratory system. Also includes pathophysiology and techniques of management.

EMT 209 Cardiovascular Emergencies /4 cr. hrs./5 periods (3 lec., 2 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
Advanced life support techniques in the assessment and management of cardiovascular emergencies. Includes anatomy and physiology, recognition and management of dysrhythmias.

EMT 210 Emergencies of the Nervous, Endocrine, Gastroenterologic, Renal and Immune Systems /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Advanced life support techniques using pre-hospital approaches to the recognition and intervention of medical emergencies related to the nervous system, acute abdomen, and anaphylaxis. Includes anatomy and physiology, assessment, pathophysiology, and management. Also includes the dialysis patient, the immune system, and allergies.

EMT 211 Advanced Life Support Emergency Toxicology, Infectious Diseases, Environmental Injuries, and Geriatrics /2 cr. hrs./2.5 periods (1.5 lec., 1 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
Advanced life support techniques using pre-hospital approaches to the recognition and intervention of medical emergencies related to toxicology, infectious disease, environmental injuries, and geriatrics. Includes poisoning, drug overdose and substance abuse, and alcohol abuse. Also includes transmission of infectious diseases, thermal disorders, near-drowning and drowning, nuclear radiation, diving emergencies, and the elderly patient.

EMT 212 Pathophysiology and Management of Gynecological, Obstetrical, and Neonatal Emergencies /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Advanced life skills approaches to gynecological, obstetrical, and neonatal emergencies. Includes anatomy and physiology, assessment of the gynecological patient, and gynecological emergencies. Also includes the prenatal period, the purpureum, emergency management of the neonate, routine care of the newborn, the premature neonate, the distressed neonate, and neonatal transport.

EMT 213 Pediatric Emergencies /.5 cr. hr./.5 period (.5 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Advanced life support skills approaches to the assessment and management of medical and traumatic emergencies of the pediatric patient. Includes pediatric advanced life support.

EMT 214 Special Consideration to Patient Care /1.5 cr. hrs./2 periods (1 lec., 1 lab)
Prerequisite(s): Acceptance into the Paramedic 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.

EMT 215 Paramedic Practicum: Clinical /4 cr. hrs./16 periods (16 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
In-hospital clinical procedures for the paramedic. Includes placement in the clinical (hospital) setting for supervised skills application with real patients.

EMT 216 Paramedic Practicum: Field Internship /5 cr. hrs./25 periods (25 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
Pre-hospital emergency medical procedures for the paramedic. Includes skills appropriate to the paramedic scope of practice in the pre-hospital setting according to established protocols.

EMT 218 Advanced Life Support Review and Preparation-Paramedic /5 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): Acceptance into the Paramedic 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.

EMT 220 Preparatory /7.5 cr. hrs./8.5 periods (6.5 lec., 2 lab)
Overview of the roles and responsibilities of the Intermediate Emergency Technician (EMT) within an EMS system. Includes anatomy and physiology of the human body as it relates to the foundations of medicine, basic principles of pharmacology and developing a drug profile for common emergency and patient-prescribed medications, and administering medications.

EMT 221 Airway and Ventilation /1 cr. hr./1.5 periods (.5 lec., 1 lab)
Techniques for establishing and/or maintaining a patent airway. Also includes anatomy and physiology, age specific techniques and procedures, introduction to respiratory pharmacology and respiratory drug profiling.

EMT 222 Patient Assessment /2.5 cr. hrs./3 periods (2 lec., 1 lab)
Skills to take a proper history and perform an advanced physical assessment on an emergency patient, and communicate the findings to the patient and others. Includes the physical exam, integrative and ongoing exams, communications and documentation.

EMT 223 Trauma /2 cr. hrs./2.5 periods (1.5 cr. hrs., 1 lec.)
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.

EMT 224 Medical Emergencies /5 cr. hrs./5.5 periods (4.5 lec., 1 lab)
Introduction to the utilization of assessment findings to formulate a field impression and implement the treatment plan for the medical patient. Includes respiratory, cardiovascular, neurological, endocrine, allergic, toxic, abdominal and urologic, environmental, behavioral and gynecological emergencies.

EMT 225 Special Medical Considerations /2 cr. hrs./2.5 periods (1.5 lec., 1 lab)
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.

EMT 226 Assessment Based Management /1 cr. hr./1.5 periods (.5 lec., 1 lab)
Integration of the principles of assessment-based management to perform an appropriate assessment and implement the management plan for patients with common complaints and injuries. Includes dispatch scenarios, scene size-up, forming impressions, communication and documentation.

EMT 227 Practicum: Clinical /2.5 cr. hrs./7.5 periods (7.5 lab)
Techniques for performing and documenting in accordance with established guidelines, orders, and protocols, and act within the scope of practice of the Intermediate EMT and under medical supervision. Includes critical care, emergency department, labor and delivery, pediatrics, and specialty units.

EMT 228 Practicum: Field Laboratory /2.5 cr. hrs./7.5 periods (7.5 lab)
Techniques for performing and documenting in accordance with established guidelines, orders, and protocols, and act within the scope of practice of the Intermediate EMT and under medical supervision. Includes critical care, emergency department, labor and delivery, pediatrics, and specialty units.

EMT 229 Independent Research in Emergency Medical Technology /3 cr. hrs./3 periods (3 lec.)
Independent research in advanced pre-hospital care.

EMT 230 Emergency Cardiac Care /1.5 cr. hrs./2 periods (1 lec., 1 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
Introduction to all levels of emergency care providers with basic electrocardiographic (EKG) 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.

EMT 232 Pediatric Advanced Life Support /.5 cr. hr./.5 period (.5 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Education and training in techniques of Pediatric Advanced Life Support. Includes endotracheal intubation, defibrillation, dysrhythmias recognition, pharmacology, and intra-osseous infusion.
Information: Required for American Heart Association provider approval and validation.

EMT 240 Trauma Management /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): Acceptance into the Paramedic Program.
Introduction to critical skills necessary to manage the trauma patient and the emergency scene through the Incident Command System (ICS). Includes emergency medical skills by focusing on emergency care interventions. Also includes exposure to patient assessment, initial treatment, resuscitative techniques, patient stabilization, and transport of the patient to the emergency care facility.

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.

EMT 251 Advanced Cardiac Care Refresher /.75 cr. hr./1 period (.5 lec., .5 lab)
Review of the integration of pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease/injury based on 3-lead and 12-lead cardiac monitoring and interpretation. Also includes information on cardiovascular anatomy and physiology, cardiovascular pathologies and management, and adjunctive diagnostics.

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).

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).

EMT 254 Advanced Cardiac Monitoring and Interpretation /2.5 cr. hrs./3 periods (2 lec., 1 lab)
Integration of pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease/injury based on 3-lead and 12-lead cardiac monitoring and interpretation. Also includes information on cardiovascular anatomy and physiology, medical terminology, electrocardiographic monitoring, and adjunctive diagnostics.

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.

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.

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.

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.

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.

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.

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.

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.

EMT 295 Independent Research in Emergency Medical Technology /3.5 cr. hrs./3.5 periods (3.5 lab)
Prerequisite(s): Acceptance into the Paramedic Program.
Independent research in advanced pre-hospital care.

ENGINEERING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

ENG 102IN Problem-Solving and Engineering Design /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MAT 151, 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.

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.

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.

ENG 170IN Problem-Solving Using Computers /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MAT 151, 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.

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, momentum, couples, centroids, trusses, machines, friction and equivalent force systems.

ENG 218 Fluid Mechanics /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): ENG 210, MAT 241.
Introduction to hydrostatics and hydrodynamics. Includes continuity, irrational flow, pressure distributions, weirs and gates, momentum and energy, surface drag, pipe friction, form drag, and pipefitting losses.

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.

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.

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.

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.

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.

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.

ENG 275IN Computer Programming for Engineering Applications / 3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MAT 151, 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.

ENG 282IN Basic Electric Circuits /5 cr. hrs./7 periods (4 lec., 3 lab)
Prerequisite(s): ENG 102.
Corequisite(s): Concurrent enrollment in MAT 262.
Basic principles of linear circuits and components. Includes DC, transient and sinusoidal steady-state analysis of passive circuits in elementary configurations. Also includes analysis of frequency selective circuits using the transfer function concept and Bode diagrams.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

ENGLISH AS A SECOND LANGUAGE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

ESL 050 English for Beginners /2 cr. hrs./2 periods (2 lec.)
Beginning level English for students with no previous knowledge of English. Includes survival skills in day-to-day situations, basic language skills, listening, reading, and writing.

ESL 060 Basic English for Speakers of Other Languages /6 cr. hrs./ 6 periods (6 lec.)
Prerequisite(s): Placement by ESL assessment test of consent of 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.

**ESL 070 Intermediate English for Speakers of Other Languages /
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
am emphasis on improving English proficiency and understanding of
American culture. Includes continued practice in listening, speaking, pro-
nunciation, vocabulary building, grammar, reading, writing, and learning
strategies. Also includes using computer technology for word processing
and using college and community resources.

ESL 073 English on the Job /3 cr. hrs./3 periods (3 lec.)
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 060
with a grade of C or better; or consent of instructor.*
General workplace communication skills for intermediate ESL students.
Includes improvement of communication with coworkers and supervisors
through practice in integrated language skills and discussion of intercul-
tural concepts. Also includes strategies for problem solving on the job.

**ESL 074 American Culture Through Literature /3 cr. hrs./3 periods
(3 lec.)**
Prerequisite(s): Consent of instructor.
Intermediate to advanced ESL reading skills through literary selections in
English. Includes social and historical American culture, reading skill
enhancement, vocabulary, structure and style, and writing activities and
discussion.

**ESL 078 Content-Based English for Academic Preparation I /
6 cr. hrs./6 periods (6 lec.)**
*Prerequisite(s): Placement of ESL assessment test, completion of ESL 070
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 dis-
course on academic topics, high intermediate grammatical structures,
writing about topics relevant to academic course work, word processing,
using the Internet, and goal setting.

**ESL 079 Project-Based English for Academic Preparation I /
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.*
High intermediate-level, integrated academic skills for nonnative speakers
of English. Includes three thematic units with texts and discourse on aca-
demic 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.

ESL 083 English with Ease /3 cr. hrs./3 periods (3 lec.)
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 070
with a grade of C or better, or consent of instructor.*
Conversational course for advanced ESL students to promote fluency in
the English language. Includes vocabulary development, listening and
reading comprehension, fluency practice, and retention and production of
idiom and set expressions in a variety of contexts.

ESL 084 Comprehensive TOEFL Preparation /3 cr. hrs./3 periods (3 lec.)
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 078
and 079 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: lis-
tening, grammar, reading, and the Test of Written English (TWE) Also
includes test-taking strategies on both timed and untimed practice tests.

ESL 084A Grammar and TOEFL Preparation /1 cr. hr./1 period (1 lec.)
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 078
and 079 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.

**ESL 084B Listening Skills and TOEFL Preparation /1 cr. hr./1 period
(1 lec.)**
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 078
and 079 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.

**ESL 084C Reading Review and TOEFL Preparation /1 cr. hr./1 period
(1 lec.)**
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 078
and 079 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.

**ESL 088 Content-Based English for Academic Preparation II /
6 cr. hrs./6 periods (6 lec.)**
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 078
and 079 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 academ-
ic texts, writing about academic topics, using word processing and the
Internet, and goal setting.

**ESL 089 Project-Based English for Academic Preparation II /
6 cr. hrs./6 periods (6 lec.)**
*Prerequisite(s): Placement by ESL assessment test, completion of ESL 078
and 079 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 aca-
demic topics, grammatical structures, reading and listening to academic
texts and discourse, speaking about and/or presenting projects on
Internet and PowerPoint, and goal setting.

ENVIRONMENTAL TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

**ENV 100 Introduction to Environmental Technology /4 cr. hrs./
5 periods (3 lec., 2 lab)**
Prerequisite(s): REA 112 and MAT 082.
Overview of society and its impact on the environment including environ-
mental regulations. Includes exploration of biological and physical sci-
ences, soil and water resources, air quality and basic laboratory proce-
dures and experiments. Also includes the technologies for resource and
waste management, and environmental and personnel protection and sus-
tainability.

**ENV 104 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-prod-
ucts 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.

ENV 105 Humanity and the Environment /3 cr. hrs./3 periods (3 lec.)
Technical, sociocultural, and political information on environmental sci-
ence and technology for non-ENV majors. Includes ecosystems, popula-
tion 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.

**ENV 132 Water and Wastewater Conveyance Systems /4 cr. hrs./
5 periods (3 lec., 2 lab)**
Prerequisite(s): ENV 102, and MAT 092 or concurrent enrollment.
Operation and maintenance of water distribution and wastewater collec-
tion systems. Includes system management, components and design,
principles of construction, flow characteristics, inspection, testing and
maintenance, pump and lift stations, reservoirs, appurtenances, applica-
tions of mathematics, and safety programs.

**ENV 133 Water and Wastewater Treatment Systems /6 cr. hrs./
8 periods (4 lec., 4 lab)**
Prerequisite(s): ENV 100.
Overview of water and wastewater treatment systems and the importance
of treatment to public environmental health. Includes summary of drinking
water and wastewater sources, water quality, wastewater characteristics,
drinking water and wastewater regulations. Also includes conveyance and
distribution systems, conventional water treatment involved in ground and
surface waters as well as conventional wastewater treatment involved in
sewage treatment and general solid waste management presented along
with the principles of basic operational laboratory analyses and basic
hydraulic, conveyance and treatment process calculations.

ENV 152 Hazardous Materials Management /6 cr. hrs./7 periods (5 lec., 2 lab)
Prerequisite(s): ENV 100 or concurrent enrollment, MAT 092 or concurrent enrollment.
Principles of hazardous materials management. Includes historical perspectives, past incidents, relationships to the environment, federal, state and local regulations, terminology, toxicology, personal protective equipment, waste minimization and Hazardous Communication standards.

ENV 158 Explosives Handling /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): Consent of instructor.
Movement and storage of explosive components. Includes pertinent regulations, identification of explosives, personal protective equipment, tools used, material movement by commercial carriers, handling and storage of explosives, and safety techniques.

ENV 196 Independent Study in Environmental Technology /1-3 cr. hrs./1-6 periods (1-3 lec., 0-3 lab)
Prerequisite(s): Consent of instructor.
Independent study in Environmental Technology. Content to be determined by conference between student and instructor.

ENV 200 OSHA 30: Industrial/Workplace Safety /3 cr. hrs./3 periods (3 lec.)
Recommended: ENV 100.
Foundations, principles, regulations, and technologies of industrial safety. Includes job safety analysis, personal protective equipment, noise exposure, mechanical and electrical safety, trenching and shoring, respiratory protection, confined space, personal safety, back safety, heat stress, lab safety and traffic safety.

ENV 205 Environmental Law for Non-Lawyers /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): ENV 100 or 105.
Examination of regulatory statutes which impact the field of environmental technology. Includes the evolution of key environmental legislation, the regulatory statutes and key precedencies that form the foundation of environmental law. The legislation includes NEPA, RCRA, CERCLA, TSCA, FIFRA, Clean Air Act, and Clean Water Act.

ENV 208 Laboratory Analysis /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): CHM 130 (CHM 151 for AA Transfer Degree).
Principles of environmental analysis and training with an emphasis on wet chemistry techniques. Includes chemical and biological analyses techniques, sample preparation, equipment use and maintenance, record keeping and report preparation, and laboratory management. Also includes wet chemistry techniques commonly employed in the environmental laboratory, including electrometric, gravimetric and photometric analyses for water, wastewater and air and soil samples.

ENV 250 Toxicology and Industrial Hygiene /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): ENV 200.
Recommended: ENV 251.
Introduction to the basics of toxicology, toxic substances, how exposure can occur, what levels of exposure are harmful, and how to control workplace toxic hazards. Includes governmental regulations and standards for toxic substances. Also includes safe industrial practices for handling toxic chemicals and general industrial hygiene.

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.

ENV 252 OSHA Hazardous Materials Annual Refresher Training / .5 cr. hr./.5 period (.5 lec.)
Review and new development training on the Occupational Safety Health Act (OSHA) requirements for hazardous materials workers. Includes an introduction and evaluation, a review of OSHA standards, personal protective equipment (PPE), medical surveillance, and hazard communication. Also includes site plans and in-class activities to get students to interact and share ideas and experiences.

ENV 258 Advanced Laboratory Analysis /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): ENV 208.
Principles of advanced laboratory analysis. Includes EPA methodology, quality assurance/quality control, record keeping, instrument operation and maintenance, and sample preparation. Also includes hands-on experience with methods and instrumentation commonly employed in environmental and other chemical laboratories.

ENV 296 Advanced Independent Study in Environmental Technology /1-3 cr. hrs./1-6 periods (1-3 lec., 0-3 lab)
Prerequisite(s): Consent of instructor.
Independent study in Environmental Technology. Content to be determined by conference between student and instructor.

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.

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.

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.

EQUINE SCIENCE
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

EQS 102 Equine Judging /3 cr. hrs./5 periods (2 lec., 3 lab)
Introduction to the proper selection and judging of horse conformation and performance. Includes concepts of anatomy, condition, and way of going. Standards of equine judging will be emphasized.
Information: May be taken four times for a maximum of twelve credit hours.

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.

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.

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.

EXPERIENTIAL EDUCATION
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

FASHION DESIGN AND CLOTHING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

FDC 212 Clothing Construction III: Tailoring /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): FDC 112, 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.

FDC 241 Introduction to Draping /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): FDC 111, 141, 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.

FINANCE *(Formerly CREDIT UNION)*

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

FIN 190B Internship in Finance: Module B /.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.

FIN 208 Installment Credit /3 cr. hrs./3 periods (3 lec.)
Study of consumer installment credit. Includes overview of consumer installment credit, consumer installment loans, laws and regulations affecting consumer lending, products and services, risks and benefits, consumer lending process, consumer load delinquencies, and administration and management.

FIN 217 Analyzing Financial Statements /2-3 cr. hrs./2-3 periods (2-3 lec.)
Interpretation and utilization of financial data. Includes income statement analysis and interpretation, retained earnings statement, balance sheet, statement of changes in financial position, sources of data, and key financial ratios.

FIN 231 Credit Union Operations /3 cr. hrs./3 periods (3 lec.)
Principles of credit union organization, department functions, and compliance to consumer regulations. Includes managing credit union operations, teller operations, credit granting, financial counseling, collections, credit unions and the law, advertising, and related operations.

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, cast flow budgeting, interest earning assets (loans and investments), cost of funds, risk management, financial trends, and audits.

FIRE SCIENCE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

FSC 153 Hazardous Materials I /2-3 cr. hrs./2-3 periods (2-3 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.

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.

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.

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, pumpers, hoses, etc.; functions and limitations of mechanical equipment to overcome these restrictions; effect of friction loss; head and pressure; water system; fire flow requirements; and organization for fire suppression.

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.

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.

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.

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.

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.

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.

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.

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 of effectively cope with conflict.

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.

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.

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.

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.

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.

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.

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.

FSC 189 Current Issues in Fire Science /2 cr. hr./2 period (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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

FITNESS AND RECREATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

FAR 115 Kickboxing /1 cr. hr./2 periods (2 lab)
Introduction to kickboxing. Includes upper and lower body muscular and cardiovascular exercises.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

FAR 160 Life Guarding /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 life guarding. 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.

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; T' ai-chi for a healthier life style and self defense; and Yang Style Short Form.
Information: This course is not intended for Fitness and Sports Science majors.

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.

FITNESS AND SPORT SCIENCES
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

FSS 119 Track and Field /1.5 cr. hrs./3 periods (3 lab)
Fundamental techniques of track and field. Includes development of personal skills, rules, courtesies, safety, philosophy, and training.
Information: May be taken four times for a maximum of six credit hours.

FSS 120 Beginning Soccer /1 cr. hr./2 periods (2 lab)
Introduction to soccer for the beginner. Includes history of soccer, basic skills, strategies, terminology, and rules to be used in drill and game activities.
Information: May be taken four times for a maximum of four credit hours.

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.

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.

FSS 125 Beginning Basketball /1 cr. hr./2 periods (2 lab)
Introduction to the fundamentals of basketball. Includes development of offensive and defensive skills, rules, team play, and strategy.
Information: May be taken four times for a maximum of four credit hours.

FSS 126 Intermediate Basketball /1.5 cr. hrs./3 periods (3 lab)
Development of techniques for students with basic basketball skills. Includes footwork, jumping, rebounding, guarding, designed plays, and officiating techniques.
Information: May be taken four times for a maximum of six credit hours.

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.

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, offensive and defensive strategies.
Information: May be taken four times for a maximum of four credit hours.

FSS 129 Beginning Softball /1 cr. hr./2 periods (2 lab)
Introduction to slow and fast pitch softball. Includes defensive and offensive skills, strategies, pitching strategies, officiating, and rules.
Information: May be taken four times for a maximum of four credit hours.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

FSS 152 Independent 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.

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.

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 lifetime health and fitness, NJCAA eligibility, and transfer to four-year colleges.
Information: May be taken three times for a maximum of six credit hours.

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.

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.

FSS 175 Yoga and Meditation /2 cr. hrs./3 periods (1 lec., 2 lab)
Prerequisite(s): FSS 174 or consent of instructor.
Emphasis on meditation, concentration techniques, and yoga philosophy. Includes complex variations of basic postures, new challenging postures, breathing and relaxation techniques, and exploration of various paths of yoga, styles 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, and be able to push into Wheel Post (Urdhva Danurasana).

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.

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.

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.

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.

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.

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.

**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 cardio-
vascular routine designed for growth in muscle endurance, strength, and
cardiovascular fitness.
Information: May be taken six times for a maximum of six credit hours.

**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.

**FSS 187 Advanced Weight Training and Cardiovascular Fitness /
2 cr. hrs./4 periods (4 lab)**
Intensive weight training and cardiovascular activities for physically quali-
fied 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.

**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.

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.

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 occupa-
tion 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.

**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.

**FSS 236 Motivational Techniques for Personal Trainers and Coaches
/2 cr. hrs./2 periods (2 lec.)**
*Prerequisite(s): WRT 100 or 106 or concurrent enrollment or satisfactory
score on the writing assessment test.*
Basic theories of motivation, reinforcement, and goal setting for personal
trainers and coaches to apply to their clients or athletes. Includes individ-
ual and group dynamics, exercise adherence, and communication tech-
niques. Focuses on practical applications.

**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 reha-
bilitating sports related injuries. Includes recognition of sports injuries,
therapeutic methods, mechanisms of sports injuries, nutrition, and taping
and wrapping techniques.

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 recre-
ation specialty, health, teaching, and coaching in the commercial, private,
and public sector.

FSS 241 Nutrition for Exercise and Sport /3 cr. hrs./3 periods (3 lec.)
*Prerequisite(s): 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 assess-
ment, regulating the body through exercise, and recent research findings.

**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 phys-
ical 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.

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 pro-
vision of national certification through the American Sport Education pro-
gram.
Information: May be taken four times for a maximum of four credit hours.

**FSS 270 Principles of Strength and Conditioning /1 cr. hr./1 period
(1 lec.)**
Prerequisite(s): FSS 218.
Advanced theory and application of resistance training principles.
Includes designing, implementing and evaluating training and condition-
ing programs to improve fitness and athletic performance.
Information: May be taken three times for a maximum three credit hours.

FSS 271 Adolescent Sport Psychology /3 cr. hrs./3 periods (3 lec.)
Development of the basics of sports psychology as applied to adoles-
cence. 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.

**FSS 272 Coaching Techniques and Practices /3 cr. hrs./3 periods
(3 lec.)**
Concepts and strategies for teaching athletes both new skills and fine tun-
ing 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.

FSS 273 Sport Physiology /3 cr. hrs./3 periods (3 lec.)
Principles of muscular, energy and endurance fitness training for peak per-
formance. Includes focus on individual differences, muscular fitness com-
ponents, energy systems, performance evaluation, and training program
development.

**FSS 276 Individualized Exercise for Wellness /2 cr. hrs./2 periods
(2 lec.)**
*Prerequisite(s): WRT 100 or 106 or concurrent enrollment or satisfactory
score on the writing assessment test.*
Evaluation and interpretation of basic wellness concepts. Includes exer-
cise, nutrition, weight control, and the application of each to create a total
fitness profile.

FSS 277 Personal Trainer /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): FSS 218, 276, or concurrent enrollment.
Principles and methods of training. Includes screening and evaluation,
individual program design, injury prevention, first aid, and legal issues.
Also includes an overview of anatomy, exercise physiology, biomechanics,
weight training, and cardio-respiratory fitness.

**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.

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.

**FSS 280 Lifestyle and Weight Management Consultant /3 cr. hrs./
3 periods (3 lec.)**
*Prerequisite(s): FSS 241 or 277 or concurrent enrollment, or consent of
instructor.*
Designed for the fitness professional. Includes current and complete sur-
vey of the knowledge, instructional techniques, and professional responsi-
bilities that lifestyle and weight management consultants need to safely
and effectively help clients make appropriate lifestyle changes. Also
includes communication, basic health behavior psychology, body compo-
sition assessment, physiology of obesity, applied exercise science, basic
nutrition, program planning and implementation, legal, professional, and
ethical responsibilities.

**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 integrating knowledge
from experienced coaches with the latest research by sport scientists.

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.

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.

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.

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.

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.

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.

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.

Professional Activities Courses For Students Planning A Major Or Minor In Fitness And Sport Sciences

FSS 208 Professional Activities: Aerobics /1 cr. hr./3 periods (3 lab)
Prerequisite(s): WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.
Aerobic skills and teaching methods for the Fitness and Sport Sciences major. Includes proper posture, exercise considerations, importance of music, learning theory, and evaluation methods.

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.

FSS 218 Professional Activities: Weight Training /1 cr. hr./3 periods (3 lab)
Introduction to basic resistance training principles. Includes anatomy and physiology, biomechanics, weight training principles, assessment and program development for healthy adults by Fitness and Sport Sciences majors.

FSS 223 Professional Activities: Racquetball /1 cr. hr./3 periods (3 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.

FSS 224 Professional Activities: Self Defense /1 cr. hr./3 periods (3 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.

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.

FSS 227 Professional Activities: Softball /1 cr. hr./3 periods (3 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.

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.

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.

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.

FOOD SCIENCE AND NUTRITION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

FSN 110 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.

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.

FSN 127 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. Emphasizes laboratory experience that utilizes current technologies in the study of nutritional biochemistry and biochemistry-based nutritional assessment.
Information: Same as BIO 127.

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.

FOUNDATIONS FOR PERSONAL CHANGE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

FRENCH

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

GENERAL BUSINESS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

GEB 130 Making the Difference through Empowerment /.5 cr. hr./.5 period (.5 lec.)
Techniques for personal empowerment. Includes understanding the role in personal and organizational success, keys to optimum performance in action skills, giving and receiving feedback, and effective ways to take responsibility for success.

GEB 131 Trust and Communication /.5 cr. hr./.5 period (.5 lec.)
Cultivating an environment of trust in an organization and the impact of effective interaction skills in one-on-one communication. Includes recognizing and avoiding five trust trap behaviors that can make them appear untrustworthy to others and how to interact effectively with co-workers, managers, customers, and suppliers.

GEB 132 Active Listening and Influencing Others /.5 cr. hr./.5 period (.5 lec.)
Techniques and skills to become an active listener and active participant in a work or social setting. Includes strategies for gaining agreement and commitment, for building relationships, and to influence others.

GEB 133 Writing for the Workplace /.5 cr. hr./.5 period (.5 lec.)
Fundamentals of workplace communications. Including writing and correctly punctuating sentences, coherent paragraphs, and complete documents.

GEB 134 Supporting Others and Valuing Differences /.5 cr. hr./.5 period (.5 lec.)
Importance and value of supporting others and recognizing the value of basic human differences. Includes assessing personal skills, abilities, and motivations and to recognizing the synergistic effect possible with people with diverse skills, motivations, and values work together and listen to each other.

GEB 135 Conflict and Partnerships /.5 cr. hr./.5 period (.5 lec.)
Handling conflict and refining partnerships. Includes techniques for continuous improvement in dealing with conflict, formulating an on-the-job action plan, and satisfying needs of internal and external customers.

GEB 136 Working with Self-Directed Teams /.5 cr. hr./.5 period (.5 lec.)
Recognize the personal, interpersonal, and organizational advantages of teamwork and cooperation. Includes identifying and understanding the stages of team development and the six factors that make teams effective. Also includes making distinction between teamwork and teams and the advantages of self-directed teams for team members, the team, and the organization.

GEB 137 Reaching Agreement /.5 cr. hr./.5 period (.5 lec.)
Understanding the dynamics of reaching agreement. Includes techniques for making good decisions and reaching agreement to maintain high standards of quality and commitment. Also includes interaction guidelines, key principles, and group process behaviors to facilitate group agreement and consensus.

GEB 154 Management Update Techniques /1 cr. hr./1 period (1 lec.)
Includes the psychology of work, psychological and physiological implications of burnout, non-verbal communication, executive mid-life crisis, and psychology of love and work.

GENERAL TECHNOLOGIES MATHEMATICS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

GEOGRAPHY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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 population, food supply, geopolitics, and urbanization. Also includes industrialization as seen in the special combination of cultural, physical, historical, economic, and organizational qualities imprinted on the landscapes of the world.

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.

GEO 108 Geography of Current Events /3 cr. hrs./3 periods (3 lec.)
Analysis of physical, cultural and regional geography through examination of global current events. Includes assessment of the region or country effected and its people, economy, politics, history, religion and language. Also includes consideration of global geophysical and climate patterns.

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.

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.

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.

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.

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.

GEOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

GERMAN

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

GER 296 Independent Study in German /1-4 cr. hrs./1-4 periods (1-4 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.

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.

GREEK

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

HEALTH CARE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

HEALTH CONTINUING EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

HCE 252 Homecare for the Ventilator Dependent Patient /1 cr. hr./ 1 period (1 lec.)
Basic theory and practice for the health care worker to gain and demonstrate knowledge and skills in home ventilator care. Includes airway and tracheotomy-related care, oxygen and inhaled medication administration and monitoring, and ventilator-related management and monitoring. Also includes discussions of psychological aspects of home ventilator care.
Information: Course completion provides certification as a ventilator care provider/professional.

HEALTH EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

HED 140B Cardiopulmonary Resuscitation (CPR) /.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.

HEBREW

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

HISTOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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 cytoplastic granules. Also includes immunohistochemistry, enzyme histochemistry, and electron microscopy.

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.

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.

HISTORY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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 a focus on the historical development of the social, political, economic, religious, military, and intellectual systems of China.

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 a focus on the historical development of the social, political, economic, religious, military, and intellectual systems of Japan.

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.

HIS 122 Tohono O'odham History and Culture /3 cr. hrs./3 periods "(3 lec.)
Survey of Tonoho O'odham culture, historical development, and modern issues. Includes development of culture and world view, sources of Tonoho O'odham history, rule in economic and social development of Northwestern Mexico and Southwestern United States, and contemporary Tonoho O'odham issues.

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.

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 Guadelupe 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.

HIS 135 Pre-Columbian Art /3 cr. hrs./3 periods (3 lec.)
Survey of the art and architecture of the Americas from the earliest times to the period of the Spanish conquest. Includes archeology, art history, ethnohistory, folklore, ethnography, and literature of Pre-Columbian peoples. Also includes recognition of major art styles and important sites.
Information: Same as ANT 135 and ART 135.

HIS 136 Masks /3 cr. hrs./3 periods (3 lec.)
Survey of traditional masks and sculpture of the tribal peoples of North America, Africa, Asia, Indonesia, and Oceania. Includes archeology, art history, ethnohistory, folklore, ethnography, and literature of tribal peoples. Also includes recognition of major art styles and their cultural relationships.
Information: Same as ANT 136 and ART 136.

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 the actions and activities of the broad diversity of peoples who contributed to the evolution of American society during that time. Also includes the social, intellectual, and political aspects of early American life.

HIS 142 History of the United States II /3 cr. hrs./3 periods (3 lec.)
Survey of the major developments in American history from the Era of Reconstruction to the present. Includes the actions and activities of the broad diversity of peoples who contributed to the evolution of American society during that time. Also includes the social, intellectual, and political aspects of early American life.

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.

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.

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.

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.

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.

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.

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.

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.

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 post-war social developments and movements.

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.

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.

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 1970's.

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.

HIS 277 History of the Middle East: From the Rise of Islam to 1453 /3 cr. hrs./3 periods (3 lec.)
Survey of the history, religion, and culture of Muslim societies. Includes the Middle East in the Sixth Century CE, Muhammad and Qur' an, Islam and the Islamic State, Fatamids, Seljuks, and the Crusades, Mongols, Mamlue Egypt, and the Ottoman Turks.

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.

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 post war world. Also includes changes created in society, government, and international relations as a result of the two wars.

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.

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.

HOME ECONOMICS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

HEC 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 SOC 127.

HONORS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

HON 210 Advisory Student Planning Board /1 cr. hr./1 period (1 lec.)
Prerequisite(s): HON 101 or 297.
The Advisory Student Planning Board (ASPB) is a selected group of six to eight students who function as an advisory group to the Honors Program coordinator and to the College Honors Advisory Council. The functions of the board include conducting student surveys on Honors courses to offer, recruiting qualified honors students at campuses and/or high schools, developing publicity and working with guest speakers. Campus representatives to the board will serve as Honors aides to the Campus Honors Coordinators. Aides will answer general questions, help plan and organize campus meetings and social events and bring campus student views to the ASPB meetings.
Information: May be taken three times for a maximum of three credit hours.

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.

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.

HON 297 Occupational Honors Seminar /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Admission to the Honors Program.
Introduction to the Honors Program for students in an occupational program. Includes creative and critical thinking techniques, problem solving strategies, and research exploration. Also includes extensive analysis developed through student projects and presentations.

HOSPITALITY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

HRM 152 Executive Housekeeping III /3 cr. hrs./3 periods (3 lec.)
Foundations and applications of financial operations. Includes purchasing, accounting, and budgets.

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.

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.

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.

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.

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.

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.

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.

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.

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, analysis of financial statements, statement of cash flows, property and equipment accounting, other noncurrent asset accounting, inventory accounting, hospitality payroll accounting, internal control, and selected accounting topics.

HRM 211 Hospitality Sales and Marketing Application /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): Minimum of one year's experience working in the hospitality industry.
Principles and techniques of sales and marketing. Includes office organization, sales techniques, advertising, public relations, publicity and a marketing plan.

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, food-service, and bars, and laws relating to hotel employees and general hotel operations.

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.

HRM 297 Hospitality Seminar /.25-4 cr. hrs./.25-16 periods (.25-4 lec., .25-12 lab)
Prerequisite(s): Consent of instructor.
Hospitality job-related training. Includes presentations by specialists in a given area and topics of timely or limited interest.

HRM 299 Co-op Related Class in HRM /1 cr. hr./1 period (1 lec.)
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.

HRM 299WK Co-op Work in HRM /1-8 cr. hrs./5-40 periods (5-40 lab)
Corequisite(s): Concurrent enrollment in HRM 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.

HUMANITIES

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

HUM 107 Humanities Through the Arts /3 cr. hrs./3 periods (3 lec.)
Humanities through a study of seven major art forms: film, drama, music, literature, painting, sculpture, and architecture. Includes historical development, elements used in creating works of art, meaning and form, and criticism or critical evaluation of each art form.

HUM 110 Humanities I /4 cr. hrs./4 periods (4 lec.)
Introduction to major cultures from Sumer through the Reformation. Includes a focus on the general history of ideas, art, architecture, religion, philosophy, drama, music, and literature. Also includes readings from the Epic of Gilgamesh, Homer, Sophocles, Aristophanes, Plato, Aristotle, Virgil's Aeneid, the Hebrew and the Christian Scriptures, St. Augustine, heroic and religious works of the Middles Ages, Dante, Chaucer, Machiavelli, and Shakespeare.

HUM 111 Humanities II /4 cr. hrs./4 periods (4 lec.)
Introduction to the culture of the modern western world from the Counter Reformation-Baroque to the present. Includes a focus on the general history of ideas, art, architecture, religion, philosophy, drama, music and literature. Also includes readings from the Baroque philosophers, Cervantes, Voltaire, Rousseau, Goethe, Romantic, pre-modern and contemporary literature, poetry, and drama.

HUM 131 Mythology /3 cr. hrs./3 periods (3 lec.)
Myths, legends, and folktales of the Greeks and Romans. Includes basic concepts of myths, major divinities and stories about them, artistic representations, effects of ancient myths on western literary tradition, and similarities and differences between major mythic systems.

HUM 196 Independent Studies in Humanities /3 cr. hrs./3 periods (3 lec.)
Reading and research projects to be arranged with instructor.

HUM 251 Western Humanities I /3 cr. hrs./3 periods (3 lec.)
Introduction to major cultures from Sumer through the early Christian era. Includes a focus on the general history of ideas, art, architecture, religion, philosophy, drama, music, and literature. Also includes readings from the Epic of Gilgamesh, Homer, Sophocles, Aristophanes, Plato, Aristotle, Vergil's Aeneid, the Hebrew and the Christian Scriptures, and St. Augustine.

HUM 252 Western Humanities II /3 cr. hrs./3 periods (3 lec.)
Introduction to major western cultures from the early Medieval through the Baroque. Includes a focus on the general history of ideas, art, architecture, religion, philosophy, drama, music, and literature. Also includes readings from heroic and religious works of the Middle Ages, Dante, Chaucer, Machiavelli, Shakespeare, Cervantes, and Baroque philosophers.

HUM 253 Western Humanities III /3 cr. hrs./3 periods (3 lec.)
Introduction to the culture of the modern western world from the Enlightenment to the present. Includes a focus on the general history of ideas, art, architecture, religion, philosophy, drama, music and literature. Also includes readings from Voltaire, Rousseau, Goethe, Romantic, pre-modern and contemporary literature, poetry, and drama.

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.

HUM 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 PSY 270.

HUMAN RESOURCES

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

INTERIOR DESIGN

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

DES 155 Space Planning I /3 cr. hrs./4 periods (2 lec., 2 lab)
Theory and methods of information gathering for design projects. Includes programming and planning, research and observation, diagramming methods, skills in drafting, and human behavior.

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.

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.

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.

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.

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.

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.

DES 222 Graphic Communication II /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): DES 122.
Recommended: 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.

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.

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.

DES 256 Human and Environmental Design /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): DES 122, 155.
Recommended: DES 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.

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.

DES 289 NCIDQ Review /1-3 cr. hrs./1-3 periods (1-3 lec.)
Prerequisite(s): Consent of instructor.
Preparation for the National Council for Interior Design Qualification examination. Includes a review of design concepts, building codes, space planning, plumbing, furniture selection, lighting, HVAC, and other topics appropriate for this examination.

INTERNATIONAL BUSINESS STUDIES

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

IBS 135 The International Career /1 cr. hr./1 period (1 lec.)
International complexities of the work force within American businesses. Includes global changes for an international work force, skills and cross-cultural training necessary for the international job market, requirements for support staff and middle management, profiles of international complexes offering employment, and suggestions and processes for employment in the international field.

IBS 136 Introduction to Global Economy /3 cr. hr./3 period (3 lec.)
Fundamental principles of the global economy. Includes a survey of international trade, currency exchange rate, balance of payment, price levels and currency depreciation and policy recommendations available to governments. Also includes methods of limiting imports and eliminating trade barriers.

IBS 140 Basic Techniques of International Trade /3 cr. hrs./3 periods (3 lec.)
Principles of international trade. Includes political and legal factors, export documentation, customs regulations, financial considerations, trade zones, trading companies, communications, exporting techniques, and case studies.

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.

IBS 170 Doing Business with Mexico /1 cr. hr./1 period (1 lec.)
United States and Mexico conducting business together. Includes current conditions, categories of business, financial arrangements, maquiladoras, the bureaucracy, culture, and communication.

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.

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.

INTERPRETER TRAINING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

ITP 105 Fingerspelling and Numbers /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): SLG 102.
Enhancement of receptive and expressive sign language skills with the manual alphabet and numbers. Includes methodology, theory, and application. Also includes states, major cities, basic mathematical functions, and common acronyms.
Information: Additional lab hours are required outside of regularly scheduled class.

ITP 200 Introduction to the Deaf Community /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): SLG 202, WRT 102.
Explores the history of American Sign Language, 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.

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.

ITP 205 Advanced Fingerspelling and Numbers /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): SLG 201.
Advanced receptive and expressive sign language skills with the manual alphabet and numbers. Includes lexicalized fingerspelling, advanced mathematical functions, and related national acronyms.
Information: Additional lab hours are required outside of regularly scheduled class.

ITP 210 Introduction to Interpreting /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): SLG 202, WRT 102.
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.

ITP 215 Classifiers, Mimetic Description and ASL Literature /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): SLG 202, WRT 102.
Development of sign language skills through the use of classifiers, mime and ASL literature. Includes direct address, physical representations, spatial representations, perspective, and traditional deaf folklore.
Information: Additional lab hours may be required outside of class.

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 situations. 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.

ITP 250 Interpreting II /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): ITP 220.
Continuation of ITP 220. Development of expressive and receptive interpreting skills in educational and community situations. Includes an emphasis on specialized situations such as platform, interview, television, medical, legal, and deaf-blind interpreting.
Information: Additional lab hours may be required outside of class.

ITP 268 Etymology /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): SLG 202.
Designed to improve and increase vocabulary for sign language interpreters. Includes use of structural analysis and contextual clues. Also includes English idioms, foreign phrases, and multiple meaning words.

ITP 270 Sign to Voice /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): SLG 202.
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.

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 skills.
Information: Additional lab hours are required outside of regularly scheduled class.

ITP 285 Educational Interpreting/Transliterating /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): ITP 220.
Interpreting in educational settings. Includes skill-building, team building, transliterating, and issues specific to educational interpreting.
Information: Additional lab hours are required outside of regularly scheduled class.

ITP 290 Interpreter Training Field Experience /2 cr. hrs./6 periods (1 lec., 5 lab)
Prerequisite(s): ITP 220 or consent of instructor.
Supervised interpreting opportunities in community settings. Includes practicum experience, observations, and classroom discussions focusing on job preparation and current issues.

ITALIAN
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

JAPANESE
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

JPN 245 Communicating with the Japanese /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.

JOURNALISM

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 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.

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.

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.

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, proofreading, headline writing, electronic page layout, typography and design, copyflow, and problems and responsibilities of editors. Also involves the extensive use of computers in the editing process.

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.

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.

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 cutlines and captions.

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 cutlines and captions, and designing the layout of photo stories. Also includes use of film scanners, computers and digital imaging software to size, crop and adjust images.
Information: Access to a 35MM still film cameras is required. Digital, still, and video cameras will be available.

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.

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.

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.

JRN 299 Co-op Related Class in JRN /1 cr. hr./1 period (1 lec.)
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.

JRN 299WK Co-op Work in JRN /1-8 cr. hrs./5-40 periods (5-40 lab)
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.

LANDSCAPE TECHNICIAN

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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/professionals interested in irrigation systems.

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.

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.

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 plantscapers, interior designers, architects and clients, with an emphasis on the creative aspects of the process.

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.

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.

LTP 270 Plant Usage & 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.

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.

LATIN

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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, 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.

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.

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.

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.

LEGAL ASSISTANT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

LAS 101 Introduction to Legal Assistant Careers /3 cr. hrs./3 periods (3 lec.)
Role, responsibilities and ethical standards of the legal assistant. Includes legal assistant employment and regulation, ethical rules of the legal profession, law office administration and systems, communication, legal interviewing, introduction to legal research and legal analysis, state and federal judicial systems, and overview of litigation and specialty areas of law.

LAS 102 Civil Litigation Procedures I /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): 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, personal 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.

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, Shepards Citators, case law, constitutions, statutes and administrative law, analyzing research problems, and preparing research reports.

LAS 104 Legal Assistant 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 legal assistants, 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.

LAS 106 Civil and Criminal Evidence /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): LAS 103 or concurrent enrollment.
Legal assistant'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.

LAS 201 Consumer Law Procedures /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): LAS 101.
Legal procedures between consumers and business entities/governmental agencies. Includes consumer claims arising from the sale of merchandise, warranties, consumer rights, defective construction claims, consumer credit reports, collection practices, towing and repossession of motor vehicles, consumer rights under form contracts/contracts of adhesion, and fair housing law.

LAS 202 Civil Litigation Procedures II /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): LAS 102.
Continuation of LAS 102. Includes discovery procedures in Federal Court, disclosure procedures in Arizona Superior Court, file organization and document control, pre-trial motions and proceedings, gathering and organizing evidence, preparation of witnesses, alternative resolutions without trial, trial procedures, post-trial and appellate procedures.

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.

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.

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.

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.

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.

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 legal assistants' roles.

LAS 210 Administrative Law /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): LAS 101 and 103 or employment as a legal assistant (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.

LAS 210A Administrative Law: Employment /1 cr. hr./1 period (1 lec.)
Prerequisite(s): LAS 101 and 103 or employment as a legal assistant/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.

LAS 210B Administrative Law: Immigration /1 cr. hr./1 period (1 lec.)
Prerequisite(s): LAS 101 and 103 or employment as a legal assistant/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.

LAS 210C Administrative Law: Social Security /1 cr. hr./1 period (1 lec.)
Prerequisite(s): LAS 101 and 103 or employment as a legal assistant/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.

LAS 210D Administrative Law: Environmental /1 cr. hr./1 period (1 lec.)
Prerequisite(s): LAS 101 and 103 or employment as a legal assistant/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.

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.

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.

LAS 213 Computer Assisted Legal Research /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): LAS 103 or equivalent research experience.
Computer assisted legal research systems. Includes search techniques, display elements, database menus, special services regarding citation methods, advanced search techniques, and cost effective usage.

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 legal assistant (paralegal) in corporate law.

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.

LAS 290 Legal Assistant Internship /4 cr. hrs./16 periods (1 lec., 15 lab)
Prerequisite(s): WRT 101, BUS 220, 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 legal assistant 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: Enrollment and placement contingent upon earned grade point average in LAS courses.
Information: Designed for students in their final semester of course work in the Legal Assistant Program.

LIBRARY SKILLS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

LIB 101 Research Process /3 cr. hrs./3 periods (3 lec.)
Recommended: LIB 070 or equivalent skills and knowledge.
Construction, analysis, research, and presentation of a research project. Includes research topic, thesis statement, working outline, search strategy, evaluating sources of information, bibliography or works cited, library catalog, reference sources (print and online), periodicals and periodical indexes (online), and Internet use for research.

LIB 161 Research Techniques for the Internet /3 cr. hrs./3 periods (3 lec.)
Principles and techniques for performing research on the Internet and the World Wide Web. Includes browsers and web environment, principles and concepts of web-based research, management and use of web-based information, directories, virtual libraries, library catalogs, common search techniques, establishing a search strategy, evaluating web-based information, citing web-based research, common search features, formats, outputs, using search engines, advanced search features, and specialized databases.

LIB 161A Technology of Web-Based Research /1 cr. hr./1 period (1 lec.)
Principles and techniques of Internet and World Wide Web (WWW) research. Includes browsers and the Web environment, principles and concepts of web-based research, management and use of web-based information.
Information: LIB 161A, 161B, and 161C together constitute LIB 161.

LIB 161B Basic Search Techniques for the World Wide Web /1 cr. hr./1 period (1 lec.)
Principles of basic search techniques. Includes directories, virtual libraries, and library catalogs, common search techniques, establishing a search strategy, evaluating web-based information, and citing web-based research.
Information: LIB 161A, 161B, and 161C together constitute LIB 161.

LIB 161C Advanced Search Techniques and Information Literacy / 1 cr. hr./1 period (1 lec.)
Principles of advanced search techniques. Includes common search features, formats, and outputs, using search engines, advanced search features, and specialized databases.
Information: LIB 161A, 161B, and 161C together constitute LIB 161.

LITERATURE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

LIT 120 Literary Visions /3 cr. hrs./3 periods (3 lec.)
Basics of reading and writing about literature. Includes an introduction to the major genres of literature: fiction, poetry, and drama. Also includes the elements of these genres: plot and structure, character, setting, style, symbolism and myth, and theme.
Information: This course is not transferable.

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.

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.

LIT 237 Women in Literature /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): WRT 102.
Survey of literature by and/or about women. Includes issues concerning women in literature and the changing images of women. Also includes a literary analysis of selected writings.

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.

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.

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.

LIT 266 World Literature: Dramatic /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): WRT 102.
Major dramatic works of western culture. Includes literary forms, historical context, psychological and moral implications of the literature, and cultural significance of plays.

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.

LIT 274 Native American Literature /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): WRT 101 or 154.
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.

LIT 288 Politics and the Novel /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): WRT 102.
Discussion and analysis of significant political questions as seen through the eyes of various novelists.

LIT 289 Literature and Film /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): WRT 102.
Investigation of the relationship between written literature and the moving image of film and video. Includes birth of film, comparative approaches, performed drama, and critical analysis.

MACHINE TOOL TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

MAC 100 Introduction to Machine Tool /3 cr. hrs./3 periods (3 lec.)
Principles and procedures for basic machine tool operations. Includes careers in manufacturing, machine tool history, safety, materials, manufacturing process planning, measurement, layout tools and procedures, principles of metal cutting, bench and hand tools, power saws, drill presses, and abrasive machine.

MAC 103 Applied Shop Mathematics /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): MAT 082 or satisfactory score on mathematics assessment test.
Practical mathematics as applied to machine tool and related technologies. Includes fractions, accuracy, exponents, pocket calculators, measurement, measuring instruments, algebra, ratios and proportions, and formulas.

MAC 110 Machine Shop I /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): MAC 100 or a score of 80% or better on a machine tool assessment test.
Introduction to basic machine shop practices. Includes safety, lathes, and milling machines.

MAC 120 Machine Shop II /4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): MAC 110 or equivalent with department advisor approval.
Continuation of MAC 110. Includes a more in depth application of safety, lathes, milling machines, and grinding machines.

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.

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.

MAC 205 Mechanical Inspection /4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): MAC 110 or industry experience.
Recommended: GTM 105.
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 coordinate measuring machines.

MAC 210 Jig and Fixture Design /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): MAC 110 or industry experience.
Recommended: CAD 101, GTM 105, MAC 120.
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.

MAC 240 Introduction to Electrical Discharge Machining /4 cr. hrs./ 6 periods (2 lec., 4 lab)
Recommended: MAC 110.
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.

MAC 245 Wire Electrical Discharge Machining and Programming I / 4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): MAC 240 and 250 or industry experience.
Recommended: MAC 255.
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.

MAC 246 Wire Electrical Discharge Machining and Programming II / 4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): MAC 245 or industry experience.
Recommended: MAC 257 or industry experience.
Computer Numerical Control (CNC) 5-axis wire Electrical Discharge Machine (EDM) programming in 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.

MAC 250 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.
Recommended: CAD 101, MAC 120.
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.

MAC 255 Computer Numerical Control (CNC) Mill Programming II / 4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): MAC 250 or industry experience.
Continuation of MAC 250. 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.

MAC 257 Computer Aided Machining (CAM) I /4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): MAC 255 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.

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.

MAC 259 Computer Aided Machining (CAM) III: Solid Modeling /4 cr. hrs./7 periods (1 lec., 6 lab)
Prerequisite(s): GTM 105, MAC 110 or industry experience.
Recommended: MAC 250.
Operations and procedures for Computer Numerical Control (CNC) Lathe. Includes review of CNC concepts and programming for CNC Lathes, and introduction to Computer Aided Manufacturing (CAM) programs.

MAC 260 Computer Numerical Control (CNC) III: Lathe /4 cr. hrs./6 periods (3 lec., 3 lab)
Recommended: MAC 255.
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.

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.

MAC 272 Integrated Design and Manufacturing with Pro-E /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): Consent of instructor.
Recommended: MAC 250.
Integration of design and manufacturing with a Computer Numerical Control (CNC) machining system. Includes introduction to Pro-Engineering (Pro-E) software, engineering drawings with Pro-E, planning of operations with Pro-E, machining operations, engineering planning sheet, CNC machining system and cutting tools, Pro-E to CNC transition, cutting-tool set-up, part fabrication, and inspection.

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.

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.

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.

MAGNETIC RESONANCE IMAGING
For courses numbered 098, 198, 298, see "Topics Courses" in index.

MRI 210 Introduction to Magnetic Resonance Imaging /1 cr. hr./1 period (1 lec.)
Corequisite: 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.

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.

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.

MRI 216 MRI Clinical Education I /1 cr. hr./4 periods (4 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.

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.

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.

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.

MRI 226 MRI Clinical Education II /1 cr. hr./4 periods (4 lab)
Prerequisite(s): MRI 216.
Corequisite(s): MRI 220, 222, 224.
Continuation of MRI 216. Includes application of general magnetic resonance imaging procedures in a clinical education center under the supervision of an American Registry of Radiologic Technologists registered MRI technologist. Also includes safety practices and patient care.

MAINTENANCE TECHNOLOGY
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

MNT 114 Chillers and Cascade Systems /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): BCT 103, MNT 110, 112.
Operations and maintenance of industrial air conditioning components. Includes centrifugal chillers, maintenance procedures, rebuilding, cascade systems, and controls.

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.

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.

MNT 120 Fundamentals of Carpentry /3 cr. hrs./3 periods (3 lec.)
Principles and techniques of carpentry. Includes safety and basic first aid, basic math, measuring, the principles of reading carpentry related plans, and the types, characteristics, and uses of lumber for carpentry.

MNT 122 Tools and Equipment for Carpentry /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MNT 120.
Classification and utilization of carpentry tools and equipment. Includes terms and definitions, types of tools and equipment, guidelines for care and safe use of hand and power tools, and miscellaneous equipment.

MNT 124 Industrial Carpentry: Foundations /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MNT 122.
Principles and techniques of concrete foundation construction. Includes terms and definitions, properties of concrete, mixtures in concrete, estimating, rebar and wire fabric sizes, parts of a foundation, designing and constructing footings.

MNT 126 Industrial Carpentry: Framing I /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MNT 122.
Principles of industrial framing. Includes floors, sills, walls, ceilings, roofs, staircase framing, and material estimating.

MNT 128 Industrial Carpentry: Finishing I /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MNT 122.
Theory and practice of interior finishing. Includes materials, paneling, ceilings, doors, cabinets, flooring, and material estimating.

MNT 130 Industrial Carpentry: Framing II /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MNT 126.
Continuation of MNT 126. Includes advanced techniques in floor, sill, ceiling, roof, truss construction, structural timber, metal stud systems, and estimating materials.

MNT 132 Industrial Carpentry: Finishing II /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): MNT 128.
Continuation of MNT 128. Includes terms and definitions, insulation, wallboard, interior wall systems, ceiling systems, trim, and exterior doors.

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.

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.

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.

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.

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.

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.

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.

MNT 156 Fiberglass, Thermoplastic, and Metal Forming /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): MAT 111.
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.

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.

MNT 170 Industrial Plumbing and Piping Systems I /2.5 cr. hrs./ 3 periods (2 lec., 1 lab)
Prerequisite(s): BCT 120, MAT 111.
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.

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.

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.

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.

MNT 210 Air Logic Control Systems /2 cr. hrs./4 periods (1 lec., 3 lab)
Prerequisite(s): ASP 105, MAT 110.
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.

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.

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.

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 shutdown controls, area annunciator panels, battery power supplies, and field processing hardware.

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.

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.

MNT 238 Electrical Transformers I /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): MAT 115.
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.

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.

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.

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.

MANAGEMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

MGT 230C Dynamics of Leadership: Team Building and Empowering /.5 cr. hr./.5 period (.5 lec.)
Introduction to 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.

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.

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.

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.

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.

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.

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.

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.

MGT 299 Co-op Related Class in MGT /1 cr. hr./1 period (1 lec.)
Corequisite: Concurrent enrollment in MGT 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.

MGT 299WK Co-op Work in MGT /1-8 cr. hrs./5-40 periods (5-40 lab)
Corequisite: Concurrent enrollment in MGT 299 Co-op Work.
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.

MARKETING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

MKT 299 Co-op Related Class in MKT /1 cr. hr./1 period (1 lec.)
Corequisite(s): Concurrent enrollment in MKT 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.

MKT 299WK Co-op Work in MKT /1-8 cr. hrs./5-40 periods (5-40 lab)
Corequisite(s): Concurrent enrollment in MKT 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.

MATERIAL RECLAMATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

MRD 101 Material Reclamation and Disposal /1 cr. hr./1.5 periods (.5 lec., 1 lab)
Prerequisite(s): MAT 082.
Principles and procedures for managing salvageable materials. Includes ferrous and non-ferrous metals, visual identification and separation, basic tools, and record keeping.

MATHEMATICS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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've taken. Includes the development of skills in listening, remembering, note taking, outlining, applying study methods and interpreting pictorial aids.

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.

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.

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.

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.

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.

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.

MAT 086B Prealgebra: Module B /1 cr. hr./1 period (1 lec.)
Prerequisite(s): MAT 086A.
Module B constitutes approximately the second one-third of MAT 086.
Information: MAT 086A, 086B, and 086C together constitute MAT 086.

MAT 086C Prealgebra: Module C /1 cr. hr./1 period (1 lec.)
Prerequisite(s): MAT 086B.
Module C constitutes approximately the third one-third of MAT 086.
Information: MAT 086A, 086B, and 086C together constitute MAT 086.

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.

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.

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.

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.

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, Vern diagrams, compound statements, truth functional connectives, and theoretical aspects of truth tables.

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.

MAT 107B Introduction to Symbolic Logic: Module B /1 cr. hr./ 1 period (1 lec.)
Prerequisite(s): MAT 107A.
Module B constitutes approximately the second one-half of MAT 107.
Information: MAT 107A, and 107B together constitute MAT 107.

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.

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.

MAT 108B Practical Geometry and Trigonometry: Module B /1 cr. hr./1 period (1 lec.)
Prerequisite(s): MAT 108A.
Module B constitutes approximately the second one-half of MAT 108.
Information: MAT 108A and 108B together constitute MAT 108.

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.

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.

MAT 114 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.

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, quadratics, exponents, and logarithms.

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.

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.

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.

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.

MAT 146 Mathematics for Elementary Teachers I /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): MAT 142 or higher.
An overview of mathematical concepts, principles and applications specifically for elementary teachers. Includes identifying and creating teaching resources, algebraic reasoning and problem solving, teaching tools, using technology to teach mathematics, and the basic practice model. Also includes problem solving techniques, real number properties and patterns, numeration systems, set theory, and operations.

MAT 147 Mathematics for Elementary Teachers II /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): MAT 146.
Continuation of MAT 146, an overview of mathematical concepts, principles and applications specifically for elementary teachers. Includes measurement, geometric shapes and definitions, probability, statistics, and data analysis.

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.

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.

MAT 151B College Algebra: Module B /1 cr. hr./1 period (1 lec.)
Prerequisite(s): MAT 151A.
Module B constitutes approximately the second one-fourth of MAT 151.
Information: MAT 151A, 151B, 151C, and 151D together constitute MAT 151.

MAT 151C College Algebra: Module C /1 cr. hr./1 period (1 lec.)
Prerequisite(s): MAT 151B.
Module C constitutes approximately the third one-fourth of MAT 151.
Information: MAT 151A, 151B, 151C, and 151D together constitute MAT 151.

MAT 151D College Algebra: Module D /1 cr. hr./1 period (1 lec.)
Prerequisite(s): MAT 151C.
Module D constitutes approximately the fourth one-fourth of MAT 151.
Information: MAT 151A, 151B, 151C, and 151D together constitute MAT 151.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

MAT 227 Discrete Mathematics in Computer Science /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): MAT 220 or higher and CIS 130 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.

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.

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.

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 matrices, Gaussian Elimination, Gram-Schmidt process, eigenvalues, and eigenvectors.

MAT 262 Differential Equations /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): MAT 231.
Introduction to differential equations. Includes differential equations of the first order with exact solutions, numerical approximations and systems, explicit methods for solving equations of higher order including series and Laplace transforms, and physical applications of first and second order differential equations.

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.

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.

MICROELECTRONICS
For courses numbered 098, 198, 298, see "Topics Courses" in index.

MRE 104 Introduction to Microelectronics /3 cr. hrs./3 periods (3 lec.)
Introduction to all areas of microelectronics technology. For students interested in working in the microelectronics industry. Includes employment opportunities, historical development, economic rationale and current state of the art. Also includes overview of technical areas, including thick and thin film materials and processes, monolithic IC's, hybrid assembly and packaging, art work and design, and quality control and reliability.

MRE 112 Electronics for Technical Careers /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MAT 092.
Concepts of solid-state electronics as they apply to technical careers.

MRE 115 Thick Film Screen Printing /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): MRE 125.
Concepts, machine set-up and operation for thick film screen printing of ceramic substrates for hybrid microelectronics. Includes all peripheral operations such as ink control, screen fabrication, substrate selection, firing, trimming, and in-line inspection and testing.

MRE 116 Microelectronic Assembly: Wire Bond /3 cr. hrs./4 periods (2 lec., 2 lab)
Techniques of wire bonding in the microelectronic component assembly process. Includes setup, certification, operation and maintenance of bond machine, batching parts, first article generation, rework, cleaning and inspection of components and controlled area procedures.

MRE 117 Microelectronics Assembly: Die and Header Attach /3 cr. hrs./4 periods (2 lec., 2 lab)
Techniques of die and header attach in the microelectronic assembly process. Includes microelectronic assembly terminology, setup of semi-automatic die attach machine, batch station, microelectronic visual aid, die bonding processes, trouble shooting, area requirements, handling procedure and proper safety precaution.

MRE 119 Microelectronics Assembly: Inspection /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): MRE 116, 117.
Inspection of microelectronic hybrid assemblies, thick film substrates, thin film substrates, and ceramic cards. Includes the use of microscopes, gauges, inspection criteria, and drawings.

MRE 120 Microelectronics Device Screening Tests /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MRE 119.
Microelectronics device screening tests for custom hybrid microcircuits. Includes general requirements, environmental test methods, mechanical test methods and test procedures.

MRE 121 Electronic Solder Assembly /2 cr. hrs./3 periods (1 lec., 2 lab)
Basic skills required to perform hand soldering on electronic equipment. Includes component preparation and insertion, terminal installation and soldering, wire interconnections and construction of a printed circuit board assembly. Also includes inspection methods and techniques.

MRE 122 Automated Factory Test Procedures /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): MRE 119.
Functional test procedures for custom hybrid microcircuits. Includes electronic test terminology, measuring devices and instrumentation, test measurements, test area work instructions and procedures, and test procedures.

MRE 123 Electronic Fabrication and Processing /2 cr. hrs./3 periods (1 lec., 2 lab)
Basic skills required for manufacturing printed circuit boards and related electronic hardware. Includes printed circuit board artwork, patterning, lay-up, etching, plating, drilling, routing, and inspection methods and techniques.

MRE 124 Introduction to Hand Soldering and Assembly /3 cr. hrs./3 periods (3 lec.)
Introduction to procedures and skills required for hand soldering and assembling components. Includes component identification, electrostatic discharge, tools and equipment, materials, preparing to solder, through hole soldering, and localized cleaning.

MRE 125 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.

MRE 200 Microelectronic Photolithographic Processes /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): MRE 104.
The image-forming processes required to produce integrated circuits. Includes imaging systems, photoresist technology, pattern transfer and process-control monitors.

MRE 220 Microelectronics Packaging /3 cr. hrs./4 periods (2 lec., 2 lab)
Principles and practical application of microelectronics packaging. Includes packaging of materials, processing methods, economics, device specification, documentation, reliability, and failure analysis.

MRE 230 Microelectronics Circuit Fabrication /4 cr. hrs./6 periods (2 lec., 4 lab)
Fabrication of a thick or thin film microelectronic circuit. Includes circuit design, component selection, layout generation, photo fabrication, screens, masks, screen printing, deposition, testing, etching and attaching components, packaging and critique.

MUSIC

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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 learning to perform what is written and identify what is heard through simple melodies and rhythms.

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.

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 reading musical notation, practicing techniques, and learning basic theoretical concepts.

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.

MUS 061 Applied Music-Private Instruction: Brass (Non Major) /2 cr. hrs./.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.

MUS 062 Applied Music-Private Instruction: Guitar (Non Major) /2 cr. hrs./.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.

MUS 063 Applied Music-Private Instruction: Percussion (Non Major) /2 cr. hrs./.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.

MUS 064 Applied Music-Private Instruction: Piano (Non Major) /2 cr. hrs./.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.

MUS 065 Applied Music-Private Instruction: Strings (Non Major) /2 cr. hrs./.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.

MUS 066 Applied Music-Private Instruction: Voice (Non Major) /2 cr. hrs./.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.

MUS 067 Applied Music-Private Instruction: Woodwinds (Non Major) /2 cr. hrs./.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.

MUS 068 Applied Music-Private Instruction (Non Major) /0 cr. hrs./.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.

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.

MUS 101 Guitar II /2 cr. hr./2 periods (2 lec.)
Prerequisite(s): MUS 100 or consent of instructor.
Continuation of MUS 100 with more detailed development of guitar skills including basic musicianship, sight-reading, repertoire development, ensemble playing and improvisation.

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.

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.

MUS 108 Pima Jazz Band I /1 cr. hr./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 four times for a maximum of four credit hours.

MUS 109 Pima Jazz Band II /1 cr. hr./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 four times for a maximum of four credit hours.

MUS 111 Exploring Music Through Piano /3 cr. hrs./3 periods (3 lec.)
Keyboard application skills and music fundamentals. Includes beginning improvisation, playing by ear, harmonizing melodies, music reading, and repertory pieces. Also includes aural application to music regarding form, style, and structure.

MUS 112 Community Jazz Band I /1 cr. hr./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 four times for a maximum of four credit hours.

MUS 113 Community Jazz Band II /1 cr. hr./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 four times for a maximum of four credit hours.

MUS 115 Guitar Ensemble /1 cr. hr./2 periods (2 lec.)
In depth study of the music for guitar ensemble ranging from the Renaissance to the present. Includes interpretation of ensemble literature, practice of proper ensemble techniques of balance, intonation and timbre, and performance of selected compositions in a public recital.
Information: Students selected by audition.
Information: May be taken six times for a maximum of six credit hours.

MUS 116 Pima Community College Orchestra I /1 cr. hr./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 eight times for a maximum of eight credit hours.

MUS 117 Pima Community College Orchestra II /1 cr. hr./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 eight times for a maximum of eight credit hours.

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.

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.

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.

MUS 126 Theory and Structure of Counterpoint /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): MUS 125.
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.

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 dictation and performance of intervals and melodic and simple rhythmic structures. Also includes general techniques of listening to music.

MUS 128 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.

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.

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.

MUS 134 Vocal Ensemble /1 cr. hr./2 periods (1 lec., 1 lab)
Prerequisite(s): Students chosen by audition.
Rehearsal and performance of literature for various combinations of voices. Emphasis on progressive development of musical skills through interpretation of literature.
Information: May be taken four times for a maximum of four credit hours.

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.

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.

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 introduction and development of elements of basic musicianship, keyboard skills, and learning techniques for music majors.

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. Focuses on more advanced theoretical and technical applications to the piano, including chord progressions, harmonizations, sight-reading and repertoire.

MUS 143 Piano Class III /2 cr. hr./2 periods (2 lec.)
Prerequisite(s): MUS 142.
Continuation of MUS 142. Incorporates advanced intermediate piano instruction utilizing group and individual practice in an electronic lab. Focuses on further study of theoretical and applied techniques at the piano.

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. Focuses on advanced application of theory and technique, including scales, arpeggios, harmonizations, transpositions and an in-depth study of repertoire and style. Also includes development of learning, memorization, and performance skills.

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.

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.

MUS 149 Opera Workshop /3 cr. hrs./ 3 periods (3 lec.)
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.

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.

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.

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 instruments.

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.

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.

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.

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.

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.

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.

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.

MUS 164 Applied Music-Private Instruction: Piano 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.

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.

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.

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.

MUS 168 Applied Music-Private Instruction I (Major) /0 cr. hrs./.5 period (.5 lab)
Prerequisite(s): Students chosen by audition.
Private weekly lessons. Includes participation in student recitals and jury exams.

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.

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.

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.

MUS 174 Applied Music-Private Instruction: Piano II (Major) /2 cr. hrs. /.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.

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.

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.

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.

MUS 178 Applied Music-Private Instruction II (Major) /0 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.

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.

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.

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.

MUS 225 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.

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.

MUS 227 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.

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.

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.

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.

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.

MUS 264 Applied Music-Private Instruction: Piano III (Major) /2 cr. hrs./.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.

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.

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.

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.

MUS 268 Applied Music-Private Instruction III (Major) /0 cr. hrs./ .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.

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.

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.

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.

MUS 274 Applied Music-Private Instruction: Piano IV (Major) /2 cr. hrs./.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.

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.

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.

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.

MUS 278 Applied Music-Private Instruction IV (Major) /0 cr. hrs./ .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.

MUS 296 Independent Studies in Music /1 cr. hr./3 periods (1 lec., 2 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.

NURSING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

NRS 096 Basic Independent Study in Nursing /1 cr. hr./1 period (1 lec.)
Prerequisite(s): Consent of instructor.
Basic level independent readings or special projects. Content to be determined by conference between student and instructor.

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: Concurrent enrollment in BIO 202, 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.

NRS 105/105LC/105LS Nursing Process II /9 cr. hrs./19 periods (4 lec., 15 lab)
Prerequisite(s): NRS 104, BIO 202, HCA 102, 155, WRT 101 and concurrent enrollment in BIO 205, ECE 117 and FSN 154.
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.

NRS 180 Transition to Practical Nursing /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): BIO 202, 205, ECE 117, FSN 124, HCA 102, 155, NRS 104, 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.

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.

NRS 196 Independent Study in Nursing /1-4 cr. hrs./1-4 periods (1-4 lec.)
Prerequisite(s): Consent of instructor.
Independent readings or special projects. Content to be determined by conference between student and instructor.

NRS 201/201LC Nursing Process III /9 cr. hrs./17 periods (5 lec., 12 lab)
Prerequisite(s): NRS 105, BIO 202, 205, ECE 117, FSN 154, HCA 102, 155, and concurrent enrollment in NRS 203, 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. Also includes additional clinical and laboratory application of selected nursing kills and knowledge to the developing family, child and seriously mentally ill clients in acute care and community settings.

NRS 202/202LC Nursing Process IV /9 cr. hrs./21 periods (3 lec., 18 lab)
Prerequisite(s): NRS 203, PSY 101, WRT 102.
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.

NRS 203 Trends and Issues in Nursing /1 cr. hr./1 period (1 lec.)
Prerequisite(s): NRS 105.
Corequisite(s): Concurrent enrollment in NRS 201.
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.

NURSING ASSISTANT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

NURSING CONTINUING EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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, healthcare 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.

OFFICE AND ADMINISTRATIVE PROFESSIONS
(Formerly ADMINISTRATIVE AND OFFICE SUPPORT CAREERS)

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

OAP 101 Beginning Shorthand /3 cr. hrs./5 periods (1 lec., 4 lab)
Recommended: OAP 111, 151.
Abbreviated system of writing in Gregg Shorthand. Includes the shorthand alphabet, English skills, shorthand speed, and transcription techniques.

OAP 102 Shorthand Refresher /3 cr. hrs./5 periods (1 lec., 4 lab)
Recommended: OAP101 or one year high school shorthand or dictation speed of 50 words per minute, and OAP151 or concurrent enrollment.
Speed building and accuracy in Gregg Shorthand. Includes shorthand theory, English skills, and mailable transcription techniques.

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.

OAP 111A Computer Keyboarding and Document Production: Keyboard /1 cr. hr./1.7 periods (.7 lec., 1 lab)
Techniques, functions for computer keyboarding skills. Includes keyboarding, speed and accuracy, language arts, and word processing commands.

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.

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.

OAP 112 Advanced Computer Keyboarding: Document Production /3 cr. hrs./5 periods (1 lec., 4 lab)
Prerequisite(s): OAP 111.
Continuation of OAP 111. Includes speed and accuracy techniques, language arts, correspondence, reports, tables, financial statements, specialized reports, legal documents, business reports, and word processing commands.

OAP 112A Advanced Computer Keyboarding: Skill Development/ Production /1 cr. hr./1.74 periods (.34 lec., 1.4 lab)
Prerequisite(s): OAP 111 or equivalent proficiency.
Continuation of OAP 111. Includes speed and accuracy techniques, language arts, correspondence, reports, and word processing commands.

OAP 112B Advanced Computer Keyboarding: Specialized Formatting /1 cr. hr./1.63 periods (.33 lec., 1.3 lab)
Prerequisite(s): OAP 112A or equivalent proficiency.
Continuation of OAP 112A. Includes speed and accuracy techniques, language arts, tables, financial statements, specialized reports, legal documents, and word processing commands.

OAP 112C Advanced Computer Keyboarding: Simulated Office Projects /1 cr. hr./1.63 periods (.33 lec., 1.3 lab)
Prerequisite(s): OAP 112B or equivalent proficiency.
Continuation of OAP 112B. Includes speed and accuracy techniques, language arts, business forms, in-basket exercises, and word processing commands.

OAP 114 Computer Keyboarding: Skillbuilding /2 or 3 cr. hrs./4 or 6 periods (4 or 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.

OAP 123 Professional Development for Administrative Support /3 cr. hrs./5 periods (2 lec., 3 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.

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.

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.

OAP 142 Legal Procedures I /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): OAP 112.
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.

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.

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.

OAP 161 Medical Office Procedures /4 cr. hrs./5 periods (3 lec., 2 lab)
Recommended: OAP 112 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.

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.

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.

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.

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.

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.

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 manuscripts, and tables, and OAP 151.
Skills and techniques of transcribing dictated materials. Includes transcription equipment, transcription techniques, language arts development, mailable documents, and career opportunity awareness.

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.

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.

OAP 262 Medical Terms II /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): OAP 162.
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.

OAP 263 Medical Terminology for Disease Pathology /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): OAP 262.
Study of related 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.

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.

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.

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.

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.

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.

PHARMACY TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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, nonsterile dosage forms, and inventory control. Also includes large and small scale compounding, packaging, and quality control.

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.

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.

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.

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.

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.

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.

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.

PHILOSOPHY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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. Also includes the principles of sound reasoning in both formal and scientific investigation.

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 primary source readings and philosophic method applied to ancient, medieval, modern, and contemporary investigations of God, mind, and matter.

PHI 123 Philosophical Foundations of Science /3 cr. hrs./3 periods (3 lec.)
Introduction to Western philosophical foundations of science. Includes scientific method, classical, medieval, modern and contemporary ideas regarding science, mathematics, and knowledge, and philosophical problems raised by discovery and change.

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.

PHI 140 Philosophy of Religion /3 cr. hrs./3 periods (3 lec.)
Introduction to Western philosophical methods as applied to religion. Includes nature and meaning of religion and God, classical arguments, the impact of religious belief on ethics, psychology, and law in the West, faith and reason, theodicy, and mysticism.
Information: This is not a world religions class.
Information: Same as REL 140.

PHYSICS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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 algebraic based, introductory Physics course. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

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.

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.

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.

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.

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.

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.

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.

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.

PHY 121/121LB/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.

PHY 122/122LB/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, magnetism, optics, relativity, and modern physics.
Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

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.

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.

PHY 210/210LB/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.

PHY 216/216LB/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.

PHY 221/221LB Introduction to Waves and Heat /4 cr. hrs./6 periods (4 lec., 2 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.

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.

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.

POLITICAL SCIENCE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

POS 105 Fundamentals of Arizona Government /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.

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, political institutions, and institutions of government, economic and social policy-making and American foreign policy and interdependence.

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.

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.

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.

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.

POS 196 Independent Study in Political Science /2-4 cr. hrs./2-4 periods (2-4 lec.)
Independent readings or special projects in political science. Content to be determined by conference between student and instructor.

POS 220 National and State Constitutions /3 cr. hrs./3 periods (3 lec.)
Principles and procedures of the national and state constitutions. Includes historical and legal environment of the United States and Arizona constitutions, civil rights and civil liberties, opinions and values in national and state politics, linking mechanisms in national and state politics, policymakers, public policy-making, and constitutional change.
Information: Satisfies the requirements for teacher certification.

POS 290 Political Science Internship /1-3 cr. hrs./5-15 periods (5-15 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.

PORTUGUESE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

POSTAL SERVICE MANAGEMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

PROCESS TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

PRO 101 Production Processing of Circuit Boards /4 cr. hrs./8 periods (2 lec., 6 lab)
Prerequisite(s): MAT 082.
Techniques for the production of double-sided, and multilayer circuit boards. Includes surface preparation of materials, lamination, imaging, developing the photoresist, etching and touch-up of circuit boards, plasma desmear, stripping, etching, soldering, stenciling, automated optical test inspection, and shadow process.

PRO 102 Production Hardware Processing /3 cr. hrs./5 periods (2 lec., 3 lab)
Techniques for bonding, masking, stenciling and inspection of production hardware. Includes adhesives, cleaning, evaluation, tools and equipment, blueprint reading, chemical handling, machine safety and essentials of planning.

PRO 103 Plastics Processing of Circuit Boards /3 cr. hrs./5 periods (2 lec., 3 lab)
Layup and bonding of circuit boards. Includes the pre-bonding process, the thermo-mechanical process, equipment operation, the breakdown process, post-bond operations, and finished product properties.

PRO 104 Plastics Processing of Production Hardware /3 cr. hrs./5 periods (2 lec., 3 lab)
Bonding and leak test procedures and the use of bonding fixtures for production hardware. Includes surface preparation, specialized tools, adhesives, resin impregnation, mass spectrometry, inspection methods, chemical handling and engineering support.

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.

PRO 107 Computer Numerical Control Concepts and Program Operation /4 cr. hrs./5 periods (3 lec., 2 lab)
Techniques for the setup and operation of a computer numerical control (CNC) printed wiring board (PWB) drilling and routing machine. Includes numerical control (NC) systems, CNC coordinates, tooling concepts, and drilling and routing procedures.

PRO 108 Drilling Processes of Circuit Boards /3 cr. hrs./5 periods (2 lec., 3 lab)
Fundamentals of computer numerical control drilling of printed circuit boards. Includes safety and handling procedures, inspection, cutting and inspection tools, machine setup, x-raying, routing, and beveling and slotting.

PRO 109 Heat Treatment Processes /3 cr. hrs./5 periods (2 lec., 3 lab)
Heat treatment processes of commonly used metals in industry. Includes structure of metals, types of heat treatments, furnace controls and operations, atmospheres and types of hardening.

PRO 110 Surface Plating /3 cr. hrs./5 periods (2 lec., 3 lab)
Principles of electrolytic and electro-less plating. Includes surface preparation, activation and protective coating, process control, and documentation and record-keeping procedures.

PRO 111 Production Processing of Circuit Boards II /4 cr. hrs./8 periods (2 lec., 6 lab)
Additional techniques for the production of double-sided and multilayer circuit boards. Includes cleaning, plating, stripping, etching, soldering, stenciling, and automated optical and electrical test inspection

PRO 116 Advanced Painting and Coating of Metals /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): PRO 106.
Advanced concepts of painting and coating of metals. Includes operation of a conventional air-operated spray gun, operation of power coating equipment, and dealing with coating defects.

PRO 120 Mechanical Aspects of Circuit Board Manufacturing /4 cr. hrs./6 periods (3 lec., 3 lab)
Principles of mechanics which apply to manufacturing in the printed wiring board industry. Includes the scientific method of investigation, common measurement tools, heat treat furnace operation, bonding process, materials and construction of circuit boards, drilling mechanics and dimensional stability.

PRO 122 Mechanical Aspects of Process Facilities /3 cr. hrs./5 periods (2 lec., 3 lab)
Troubleshooting, analyzing, and diagnosing problems associated with process shop machinery. Includes manual and automatic gritblast machines, powder coating of metals, resin impregnation equipment, filament winding, heat treating furnaces, mechanical aspects of the plating lines, vacuum bonding, and leak testing.

PRODUCTION INVENTORY MANAGEMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

PIM 200 Production Planning /3 cr. hrs./3 periods (3 lec.)
Master planning techniques used for production management and inventory. Includes business planning, production forecasting, master production scheduling, and techniques in materials management.
Information: Candidates for APICS Master Planning certification examination will find this course valuable.

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.

PIM 215 Material and Capacity Requirements Planning /3 cr. hrs./3 periods (3 lec.)
Beginning and advanced methods of time-phased Material and Capacity Requirements Planning (M&CRP). Includes bills of material, data-requirements, phased inventory requirements, the planner's interface to the MRP

system, and methods of capacity planning.
Information: Candidates for APICS Material and Capacity Requirements Planning certification examination will find this course valuable.

PROFESSIONAL FLIGHT TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 in our lives, 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.

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.

PSY 140 Introduction to Applied Behavior Analysis /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): PSY 100A or 101 or consent of instructor.
Introduction to the field of behavior change using client-centered positive approaches. Includes teaching, psychotherapy, personal behavior change programs, law enforcement, addiction, business management, treatment of juvenile offenders, and sports psychology.

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.

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.

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.

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.

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.

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. Includes mind-body relationships, behavior risk factors and psychosocial aspects of specific disorders.

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.

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.

PSY 226 Psychology of Creative Arts /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): PSY 100A and 100B or 101 or consent of instructor.
Experiential, theory and practice of the primary modalities of art therapy. Includes history, psychological and anthropological theory, analysis of techniques, field applications, and cross-cultural bridges. Also includes individuation, community-building, stress management, and enhancement of professional skills.

PSY 228 Introduction to Psychodrama /3 cr. hrs./3 periods (3 lec.)
Practical application of psychodramatic methods. Includes use of warm-up, action, sharing, scene setting, auxiliaries, role reversal, mirror, double, soliloquy, and aside.

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.

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.

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.

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.

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.

PSY 271 Social Psychology of Sport /3 cr. hrs./3 periods (3 lec.)
Analysis of the relationship of sport to the social psychological principles of socialization, values, concentration, anxiety, aggression, motivation, team interactions, and peak performance.
Information: Same as SOC 271.

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.

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.

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.

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.

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.

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.

PUBLIC ADMINISTRATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

PUBLIC SAFETY COMMUNICATIONS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

PSC 199 Co-op Related Class in PSC /1 cr. hr. /1 period (1 lec.)
Corequisite(s): Concurrent enrollment in PSC 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.

PSC 199WK Co-op Work in PSC /1-8 cr. hrs. /5-40 periods (5-40 lab)
Corequisite(s): Concurrent enrollment in PSC 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.

QUALITY CONTROL TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

QCT 105 Quality Management for the Receiving Area /3 cr. hrs./ 3 periods (3 lec.)
Prerequisite(s): REA 073, MAT 082.
Analysis of quality management for the receiving area in the manufacturing environment. Includes product acceptance types and methods, configuration control and traceability, hardware disposition, and qualification of supplies and verification of hardware.

QCT 106 Quality Specialist: Receiving Area Inspection /3 cr. hrs./ 3 periods (3 lec.)
Prerequisite(s): QCT 105.
Principles and procedures of quality management in the receiving area of a manufacturing environment. Includes inspection tasks common to all shipments; receiving and processing of source and in-house inspected materials such as electrical, mechanical, sister division, raw, and certified supplier materials; and documenting nonconforming material.

QCT 110 Nondestructive Inspection /3 cr. hrs./5 periods (2 lec., 3 lab)
Prerequisite(s): MAC 285, MAT 110.
Parts inspection for production defects. Includes types of discontinuities, principles of nondestructive inspection methods, equipment and test procedures, applicable specifications and standards, interpretation and evaluation of test results.

RADIOLOGIC TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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 medical imaging equipment, image formation, positioning of the chest, and radiation protection.

RAD 171/171LB Radiographic Positioning I /4 cr. hrs./ 6 periods (3 lec., 3 lab)
Prerequisite(s): RAD 170 and consent of program coordinator.
Radiographic positioning of the abdomen, upper and lower extremities, pelvic girdle, and spine. Includes patient care, anatomy, and pathology.

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.
Radiographic image production and evaluation. Includes image quality, quality assurance, radiation protection, and film processing.

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 safety practices and patient care.

RAD 174/174LB Radiographic Positioning II /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): RAD 171, 172, 173.
Radiographic positioning of the ribs and shoulder girdle. Includes fluoroscopic procedures of the upper/lower gastrointestinal tract, biliary, and genitourinary systems.

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 radiation physics, x-ray generators, diagnostic radiographic systems, and radiation safety.

RAD 176LB Clinical Education II /4 cr. hrs./24 periods (24 lab)
Prerequisite(s): RAD 171, 172, 173.
Continuation of RAD 173. Includes application of special radiographic positioning of the skeletal system exclusive of the skull. Also includes emergency radiographic procedures.

RAD 177LB Clinical Education III /6 cr. hrs./36 periods (36 lab)
Prerequisite(s): RAD 174, 175, 176.
Continuation of RAD 176. Includes surgical radiographic procedures.

RAD 181/181LB Radiographic Positioning III /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): RAD 177.
Radiographic positioning of the skull, special imaging procedures, and radiation biology. Includes radiographic critique and anatomy.

RAD 182/182LB Medical Imaging Technology III /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): RAD 177.
Specialized and advanced medical imaging systems. Includes mobile radiography, tomography, image intensification, special procedures, Nuclear Medicine, Ultrasound, CT Scanning, and Magnetic Resonance Imaging.

RAD 183LB Clinical Education IV /4 cr. hrs./24 periods (24 lab)
Prerequisite(s): RAD 177.
Continuation of RAD 177. Includes fluoroscopy, mobile, and special radiographic procedures.

RAD 184/184LB Radiographic Positioning IV /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): RAD 181, 182, 183.
Routine positioning for mammography, pediatrics, cardiovascular, and interventional examinations. Includes anatomy, patient care, patient management, and medical emergencies.

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.

RAD 186LB Clinical Education V /4 cr. hrs./24 periods (24 lab)
Prerequisite(s): RAD 181, 182, 183.
Continuation of RAD 183. Includes advanced imaging procedures, Computer Tomographic Scanning, Magnetic Resonance Imaging, and radiographic positioning of the skull.

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.

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.

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, transverse, and coronal planes of the thorax. Includes structure identification and anatomic relationships of the bones, organs, muscles, nerves, and cavities.

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.

READING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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, and reading strategies necessary to assure successful comprehension at the literal level. Designed for persons who need an intensive review of the basic reading strategies.
Information: May be taken two times for a maximum of eight credit hours.

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.

REA 075 Spelling /2 cr. hr./2 period (2 lec.)
Development of strategies for improving spelling. Includes the improvement of spelling skills through study and practice of phonic principles and study of homonyms and their appropriate uses.
Information: May be taken two times for a maximum of four credit hours.

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.

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.
Information: May be taken two times for a maximum of two credit hours.

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, and reading strategies necessary to assure successful comprehension at the literal and text-based levels.
Information: Designed for persons who need to improve reading strategies in order to increase their success in college.
Information: May be taken two times for a maximum of eight credit hours.

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 literal and critical comprehension, textbook reading strategies, analytical reasoning, reading rate improvement, and vocabulary expansion and retention.
Information: Designed for persons who need to improve reading strategies in order to increase their success in college.
Information: May be taken two times for a maximum of eight credit hours.

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.

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.

REAL ESTATE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

RLS 202 Real Estate Appraisals /3 cr. hrs./3 periods (3 lec.)
Basic principles and practical application of real estate appraisals. Includes valuation terms, market analysis, classification of data and income and cost factors.

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 the mortgage market, acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing and duties of the mortgage loan officer.

RLS 252 Advanced Appraisal Techniques /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): RLS 202 or consent of instructor.
Provides understanding of the mathematical procedures used to analyze data and derive value estimates for income-producing properties. Includes the theory and application of the income capitalization approach to appraisal. Also includes discounted cash flow analysis.

RECORD AND INFORMATION MANAGEMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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).

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.

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.

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.

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.

RIM 221 Medical/Health Record Coding /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): OAP 262, 263.
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.

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.

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.

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.

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.

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.

RECREATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

REC 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.
Information: Same as TVL 120.

REC 132 Aging: Health and Physiology /3 cr. hrs./3 periods (3 lec.)
Overview of the health and physiology of the elderly. Includes disabilities, nutrition, medication and drugs, chronicity, sensory loss, and other aspects of the normal aging process. Also includes recognition of health problems and making appropriate referrals.
Information: Same as SSE 132.

REC 210 Leisure Delivery Systems /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): REC/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.
Information: Same as TVL 210.

REC 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.
Information: Same as TVL 250.

REC 283 Customer Service and Program Planning /3 cr. hrs./3 periods (3 lec.)
Essential elements and basic principles of recreational service and planning. Includes planning, marketing, and evaluating a program, and customer service.

REC 290 Fieldwork /3-6 cr. hrs./15-30 periods (15-30 lab)
Prerequisite(s): Consent of instructor.
Field experience providing the opportunity to apply coursework in a planned and supervised recreational or tourism setting.
Information: May be taken two times for a maximum of six credit hours.
Information: Same as TVL 290.

RELIGION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

REL 119 Western Religions /3 cr. hrs./3 periods (3 lec.)
Introduction to Judaism, Christianity, and Islam. Includes historical development, teachings, festivals, and rituals. Also includes common heritage, emphasis and variations in Judaism, Christianity, and Islam.

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.

REL 140 Philosophy of Religion /3 cr. hrs./3 periods (3 lec.)
Introduction to Western philosophical methods as applied to religion. Includes nature and meaning of religion and God, classical arguments, the impact of religious belief on ethics, psychology, and law in the West, faith and reason, theodicy, and mysticism.
Information: This is not a world religions class.
Information: Same as PHI 140.

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).

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.

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.

REL 233 Early Christianity /3 cr. hrs./3 periods (3 lec.)
History and selected writing of the first three hundred years of Christianity. Includes the world of early Christianity, major issues in early Christianity, and writings of major Church Fathers.

REL 234 Islam /3 cr. hrs./3 periods (3 lec.)
History and literature of Islam. Includes texts of the Qur'an, life of the Prophet Mohammed, basic tenets and practices of Islam, poetry and practices of the Sufi poets, and the historical development of Islam from the eighth century to the present.

REL 273 Judaism /3 cr. hrs./3 periods (3 lec.)
Introduction to the Jewish religion. Includes the nature and central themes of Judaism, Days of Awe, Shabbat, Pesach, Shavuot, Lots, Hanukkah, institutions, and life cycle events.

REL 275 Native American Worldviews /3 cr. hrs./3 periods (3 lec.)
Native American views of reality, morality, religion, and society. Includes regions and cultural traditions, significant features, and interpretive issues.

RESERVE OFFICERS TRAINING CORPS-ROTC-AIR FORCE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

MLA 100 Air Force Today I /2 cr. hrs./2 periods (2 lec.)
Review of the history, functions, and organization of the Air Force, Air Force doctrine, national strategy, and strategic offensive forces. Includes leadership building activities such as professional training and orientation, fitness training, and drill and ceremony training.
Information: Course offered in cooperation with the University of Arizona.

MLA 101 Air Force Today II /2 cr. hrs./2 periods (2 lec.)
Strategic defensive forces, U.S. general purpose forces, and the support commands and operating agencies of the Air Force. Includes leadership building activities such as professional training and orientation, fitness training, and drill and ceremony training.
Information: Course offered in cooperation with the University of Arizona.

MLA 200 History of Air Power I /2 cr. hrs./2 periods (2 lec.)
Review of chronological development of air power from the advent of the air age through World War II. Includes leadership building activities such as professional training and orientation, fitness training, and drill and ceremony training.
Information: Course offered in cooperation with the University of Arizona.

MLA 201 History of Air Power II /2 cr. hrs./2 periods (2 lec.)
The development of the Air Force from 1946 to the present. Includes leadership building activities such as professional training and orientation, fitness training, and drill and ceremony training.
Information: Course offered in cooperation with the University of Arizona.

RESERVE OFFICERS TRAINING CORPS-ROTC-ARMY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

MLS 100 Introduction to Leadership /3 cr. hrs./3 periods (3 lec.)
Organization of the Army. Includes principles and techniques of applied leadership, customs, traditions and military courtesy.
Information: Course offered in cooperation with the University of Arizona.

MLS 101 Leadership Principles /3 cr. hrs./3 periods (3 lec.)
Principles and techniques of military leadership. Includes customs, basic marksmanship, first aid, land navigation, small-unit tactics and practicum.
Information: Course offered in cooperation with the University of Arizona.

MLS 200 Army Composition/Function and Leadership Development I /3 cr. hrs./3 periods (3 lec.)
Military staff organization and operation. Includes procedures and conduct of military briefings and benefits.
Information: Course offered in cooperation with the University of Arizona.

MLS 201 Army Composition/Function and Leadership Development II /3 cr. hrs./3 periods (3 lec.)
Responsibilities and obligations of a commissioned officer. Includes small unit leadership, motivation and practicum.
Information: Course offered in cooperation with the University of Arizona.

RESERVE OFFICERS TRAINING CORPS-ROTC-NAVY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

NSP 100 Naval Laboratory I /1 cr. hr./2 periods (2 lab)
Applied exercises in naval ship systems, navigation, naval operation, naval administration and military justice. For freshman NROTC students at the University of Arizona. Includes such topics as drill and ceremonies, physical fitness, cruise preparation, sail training, safety awareness, personal finance and applied exercises.
Information: May be taken two times for a maximum of two credit hours.

NSP 101 Introduction to Naval Science /2 cr. hrs./2 periods (2 lec.)
An introduction to the Naval profession and to concepts of sea power. Includes an emphasis on missions, organizations and warfare components of the Navy and Marine Corps, Naval courtesy and customs, military justice, leadership, and nomenclature.
Information: Course offered in cooperation with the University of Arizona.

NSP 102 Naval Ship Systems I: Engineering /3 cr. hrs./3 periods (3 lec.)
Ship characteristics and types. Includes ship design, hydrodynamic forces, stability compartmentation, propulsion, electrical and hydraulic systems, interior communications, ship control and damage controls. Also includes theory and design of steam, gas turbine and nuclear propulsion.
Information: Course offered in cooperation with the University of Arizona.

NSP 200 Naval Laboratory II /1 cr. hr./2 periods (2 lab)
Continuation of NSP 100. For sophomore NROTC students at the University of Arizona.
Information: May be taken two times for a maximum of two credit hours.

NSP 201 Naval Ship Systems II: Weapons /3 cr. hrs./3 periods (3 lec.)
Theory and employment of weapons systems. Includes the processes of detection, evaluation, threat analysis, selection, delivery and guidance. Physical aspects of radar and underwater sound are also covered.
Information: Field trip.
Information: Course offered in cooperation with the University of Arizona.

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. Includes a discussion of the theories of Mahan, political issues of merchant marine commerce, and a comparison of U.S. and Soviet naval strategies.
Information: Field trip.
Information: Course offered in cooperation with the University of Arizona.

NSP 205 Leadership and Management /3 cr. hrs./3 periods (3 lec.)
Introduction to the fundamental theoretical concepts of leadership and management in a military setting. Includes authority, responsibility, and accountability, applying leadership skills, prioritize, applying leadership skills, groups, planning and follow-up, moral and ethical responsibilities, communication, counseling skills, personal qualities, Total Quality Leadership (TQL), and core values.

RESPIRATORY THERAPY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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, profes-

sionalism, medical record utilization, oxygen administration and analysis, and respiratory physiology principles applied to patient care.

RTH 135LB Clinical Procedures II /4 cr. hrs./16 periods (16 lab)
Prerequisite(s): RTH 125, 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.

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.

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.

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.

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.

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.

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.

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.

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.

RESTAURANT CULINARY AND FOODSERVICE MANAGEMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

RUSSIAN

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

SIGN LANGUAGE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

SLG 050 Conversational Sign Language I /3 cr. hrs./3 periods (3 lec.)
Introduction to conversational sign language skills. Includes basic sign vocabulary, Deaf culture, and an overview of communication systems.

SLG 055 Conversational Sign Language II /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): SLG 050.
Conversational sign language skills. Includes intermediate sign vocabulary, d/Deaf culture, and a focus on developing intermediate skills in sign language.

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 additional lab hours outside of the regular classroom schedule.
Information: This class is conducted primarily without voice.

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, fingerspelling, 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 additional lab hours outside of the regular schedule.
Information: This class is conducted primarily without voice.

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 additional lab hours outside of regular classroom schedule.
Information: This class is conducted primarily without voice.

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 linguistical 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 additional lab hours outside of regular classroom schedule.
Information: This class is conducted primarily without voice.

SOCIAL SERVICES

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

SSE 140 Domestic Violence: Causes and Cures /3 cr. hrs./3 periods (3 lec.)
Survey of historical and contemporary causes of domestic violence. Includes the examination of abused populations: spouse, sibling, adult child-to-parent, children, and victims of dating violence. Also includes diagnosis, prevention, and treatment of domestic violence, and identification of and need for treatment programs.

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.

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.

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 AJS 160.

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.

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.

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.

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.

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.

SSE 220 Treatment of the Substance Abuser /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): SSE 120.
Recommended: SSE 122.
Principles and techniques of treating the substance abuser. Includes therapeutic communities, day care programs, methadone maintenance, detoxification, and psychotherapy.

SSE 222 Political and Legal Aspects of Drug Use /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): SSE 120.
Recommended: SSE 122.
Overview of drug abuse and the law. Includes the influence of politics, economics, civil liberties, court decisions, and public opinion. Also includes consideration of international trafficking, gangs, and money laundering.

SSE 242 Crisis Intervention, Theory and Techniques /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): SSE 112 or consent of instructor.
Principles and practice of crisis intervention. Includes techniques of intervention, referrals, and diagnosis utilized in resolving crisis situations encountered in social service settings.

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.

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 activites under this course.
Information: May be taken two times for a maximum of six credit hours.
Information: Same as SOC 289.

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.

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.

SSE 293 Community Health Advising Field Experience /6 cr. hrs./25.2 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.

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.

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.

SOCIOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

SOC 110 Introduction to Cities and Community Planning /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.

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.

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 HEC 127.

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.

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.

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.

SOC 204 Women in Society /3 cr. hrs./3 periods (3 lec.)
Examination of the status of women in society. Includes sociological and historical perspectives, politics, family issues, love and marriage, masculinity, professions and workplace, media, religion, global perspectives, and medical and information technology.

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.

SOC 271 Social Psychology of Sport /3 cr. hrs./3 periods (3 lec.)
Analysis of the relationship of sport to the social psychological principles of socialization, values, concentration, anxiety, aggression, motivation, team interactions, and peak performance.
Information: Same as PSY 271.

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.

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.

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.

SPANISH

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

SPA 103 Spanish for Spanish Speakers I /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.

SPA 104 Spanish for Spanish Speakers II /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.

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.

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.

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.

SPA 121 Spanish for the Workplace I /4 cr. hrs./4 periods (4 lec.)
Survey of beginning vocabulary and grammatical structures used in a variety of occupational settings. Includes basic oral and written forms, grammatical structures, and interpersonal transactions, with an emphasis on immediate application at home or on the job. Also includes geographical and cultural differences among Spanish speaking populations.

SPA 122 Spanish for the Workplace II /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): SPA 121.
Continuation of SPA 121. Includes oral and written forms, additional grammatical structures, and additional interpersonal transactions. Also includes additional geographical and cultural differences among Spanish speaking populations.

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.

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.

SPA 203 Writing and Oral Skills for Spanish Speakers /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): SPA 104 or equivalent or ability to speak, read, and write Spanish.
Intensive writing and speaking in Spanish for individuals of bilingual background. Includes oral communication, written communication, bilingual careers and professions, and themes in popular and traditional culture.

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.

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.

SPA 240 Grammar and Composition /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): SPA 202 or 253.
Development of advanced grammar and writing communicative skills. Includes grammar structures, factual, expository, and argumentative writing.

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.

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.

SPA 253 Intermediate Spanish for Spanish Speakers /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): SPA 104.
Intensive writing and speaking for Spanish speakers within a dynamic cultural context. Includes intermediate oral and written communication, exploration of diversity of culture and customs, and themes in literature.

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.

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.

SPEECH COMMUNICATION
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

SPE 110 Public Speaking /3 cr. hrs./3 periods (3 lec.)
Study and training in public speaking and audience adaptation. Includes developing skills in the areas of research, logic, analysis, organization, and delivery.

SPE 120 Business and Professional Communication /3 cr. hrs./3 periods (3 lec.)
Study and training in communication within work situations. Includes oral reports, interviewing, persuasion, listening, and group problem-solving and decision-making.

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.

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.

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.

SPE 249 Special Studies in Speech Communication /1-4 cr. hrs./1-4 periods (1-4 lec.)
Prerequisite(s): Six credit hours in speech.
Under individual guidance of an instructor, student researches an aspect of communication not available through regular course offerings.

STUDENT SUCCESS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

STU 100C Notetaking Tips /.25 cr. hr./.25 period (.25 lec.)
Systematic instruction and practice taking notes from lectures and print material. Includes notetaking techniques and tips for making notetaking easier.
Information: STU 100A, 100B, 100C, and 100D together constitute STU 100.

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.

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 setting. 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.

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.

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 re-entry 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.

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.

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.

STU 109B Career Exploration: Goal Development /1 cr. hr./1 period (1 lec.)
Resources for career planning. Includes personality preferences, eliminating stereotypes, advanced career research, information interviews, decision making, and developing an educational/career plan.
Information: STU 109A and 109B together constitute STU 109.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

TECHNOLOGY

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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, power supplied, and digital electronic circuits. Also includes the language of electronics and the mathematical foundations and relations relative to the electronics industry.

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.

TEC 102 Principles of Technology /4 cr. hrs./8 periods (2 lec., 6 lab)
Prerequisite(s): TEC 101 or consent of instructor.
Continuation of TEC 101. Includes experimentation and study of applied momentum, waves, and vibrations. Also includes transient responses to physical stimuli, energy convertors and transducers, electromagnetic and nuclear radiation, light, and optical systems.

TEC 103 Light and Optical Systems /1 cr. hr./2 periods (1 lec., 1 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 subassemblies, and proper methods of disassembly. Also includes thermal and vibrational considerations as applied to assembly of systems.

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.

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.

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.

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.

TEC 123/123LB Digital Circuits and Computers /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): TEC 101 or consent of instructor.
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.

TEC 124 Modern Electronic Communications /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): TEC 113, TEC 121 and 151, or consent of instructor.
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.

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.

TEC 126 Electronics Construction and Assembly /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): TEC 113, TEC 121.
Basic skills required to work on electronic equipment. Includes assembly techniques, soldering and desoldering, printed circuit board fabrication, wire wrapping and cable construction. Also includes discussion of machine shop and power tools.

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.

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.

TEC 130/130LB Microcomputer Assembly and Testing /4 cr. hrs./5 periods (3 lec., 2 lab)
Prerequisite(s): Consent of instructor.
Microcomputer 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.

TEC 132/132LB Microcomputer Systems Servicing /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): TEC 130, 160.
Servicing microcomputers, peripherals and software. Includes determining the operational status of monitors, printers, floppy disk drives, hard drives, installed operating systems, and application software.

TEC 140 Geometric Optics /2 cr. hrs./2 periods (2 lec.)
Co-requisite(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.

TEC 141 Wave Optics /3 cr. hrs./3 periods (3 lec.)
Co-requisite(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.

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.

TEC 160 Microcomputers and Programming Techniques /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): MAT 092 or TEC 111 or consent of instructor.
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.

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.

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.

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.

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.

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.

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.

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.

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, sub-systems, specifications, adjustment, operation, maintenance, and troubleshooting of cable, RF point-to-point, laser, fiber, satellite, transponder, cellular, and computer systems.

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.

TEC 229 Integrated Systems in Telecommunications /4 cr. hr./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.

TEC 230/230LB Peer-To-Peer Networking /4 cr. hrs./6 periods (3 lec., 3 lab)
Prerequisite(s): TEC 132 or consent of instructor.
Introduction to basic networking concepts. Includes network topologies, configuration, protocols, and technologies. Also includes inter-networking concepts and experiential learning.

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. Includes installation, setup, administration, setting of network interface card, interrupts, I/O base address, and memory configurations. Also includes using technical literature to make user accounts, directories, permissions, printer servers, printer queues, printer definitions, printer configurations, and remote printing.

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.

TEC 235 Survey of Networks and Operating Systems /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): TEC 132.
Survey of computer, networks, and operating systems including DOS, OS/2, VMS, UNIX, peer-to-peer and client/server network operating systems (NOS). Includes topics on network topologies, protocols, and transmission media. Also includes topics on distributed operating systems.

TEC 236 Underpinnings of the Internet /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): TEC 160.
Introduction to the Internet and its services. Includes topics on the structure, operation, and physical components of the network. Also includes differences due to variations in server operating systems.

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 from the ground up. Includes top-

ics on client/server models, operating systems, network operating systems (NOS), and middleware, database servers, and groupware.

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.

TEC 251/251LB Analog Circuits /4 cr. hrs./6 periods (3 lec., 3 lab)
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.

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.

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.

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.

TEC 284 Calibration of Optical Systems /3 cr. hrs./5 periods (1 lec., 4 lab)
Co-requisite(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.

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.

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.

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.

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.

THEATER

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

THE 107 Introduction to Pantomime /3 cr. hrs./3 periods (3 lec.)
Development of theater skills through the language of mime. Includes technique and vocabulary necessary to articulate thought process by means of body dynamics.

THE 109 Introduction to Chicano Theater Arts /2 cr. hrs./3 periods (1 lec., 2 lab)
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.

THE 110 Movement/Dance for Actors /3 cr. hrs./3 periods (3 lec.)
Physical dynamics of actor training. Includes warm-up and relaxation techniques, text and scene analysis through movement and an introduction to dance and movement traditions of musical theater.

THE 111 Stagecraft /3 cr. hrs./3 periods (3 lec.)
Co-requisite(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.

THE 113 Stagecraft Crew /1 cr. hr./3 periods (3 lab)
Co-requisite(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.

THE 115 Make-up /1 cr. hr./3 periods (1 lec., 2 lab)
Principles and practice of straight and character make-up under various conditions. Includes special effects, masks, clown make-up and fantasy make-up.

THE 118 Basic Theater Graphics /2 cr. hrs./4 periods (1 lec., 3 lab)
Principles and practice of graphic skills necessary in the planning of theatrical productions. Includes drafting and mechanical drawing, perspective drawing, and watercolor painting techniques.

THE 140 History of Theater I /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.

THE 141 History of Theater II /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.

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.

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 sub-text (unspoken thoughts) in performances. Also includes techniques for character and script analysis.

THE 220 Stage Lighting /2 cr. hrs./2 periods (2 lec.)
Corequisite(s): Concurrent enrollment in THE 221 and 222.
Principles of stage lighting design and practice. Includes study of stage lighting, instruments and their capabilities, construction, and uses in various theatrical applications.

THE 221 Stage Lighting Laboratory /1 cr. hr./3 periods (3 lab)
Corequisite(s): Concurrent enrollment in THE 220 and 222.
Practical application of stage lighting techniques. Includes mounting, hanging and focusing from design, adjustments and repair of instruments, organizing and operation of control systems, and safety practices.
Information: May be taken three times for a maximum of three credit hours.

THE 222 Stage Lighting Crew /1 cr. hr./3 periods (3 lab)
Corequisite(s): Concurrent enrollment in THE 220 and 221.
Organizing, setting up and operating of stage lighting for approved theatrical productions.
Information: May be taken three times for a maximum of three credit hours.

THE 223 Scene Design /2 cr. hrs./2 periods (2 lec.)
Prerequisite(s): THE 118.
Corequisite(s): Concurrent enrollment in THE 224 and 225.
Principles of scene design for various types of stage and models of productions. Includes ground plans, color design, painting techniques, and uses of plastic materials and fabric design.

THE 224 Scene Design Laboratory /1 cr. hr./3 periods (3 lab)
Prerequisite(s): THE 118.
Corequisite(s): Concurrent enrollment in THE 223 and 225.
Practical application of scene design techniques. Includes base and paint application in various styles, mixing and blending of painting materials and forming and mounting set decorations.
Information: May be taken three times for a maximum of three credit hours.

THE 225 Scene Design Crew /1 cr. hr./3 periods (3 lab)
Prerequisite(s): THE 118.
Corequisite(s): Concurrent enrollment in THE 223 and 224.
Planning, painting, and decorating stage settings for approved theatrical productions.
Information: May be taken three times for a maximum of three credit hours.

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.

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.

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.
Continuation of THE 250. Includes scene and monologue development and focusing on conventions of non-realistic styles.

THE 296 Independent Studies in Theater /1-4 cr. hrs./3-12 periods (3-12 lab)
Students work at various assigned tasks in theatrical productions under the guidance of an instructor. Includes the opportunity for the student to design his/her own project with the instructor's approval.

TOHONO O'ODHAM CULTURE

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

TOHONO O'ODHAM

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

THO 106 Conversational Tohono O'odham 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.

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.

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.

THO 107 Conversational Tohono O'odham 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.

TRAINING FOR SPECIAL EDUCATION

For courses numbered 098, 198, 298, see "Topics Courses" in index.

TSE 101 Orientation to the Exceptional Child /3 cr. hrs./3 periods (3 lec.)
Introduction to the physical and mental characteristics of children in special education. Includes disability categories such as mental retardation, emotionally handicapped, hearing and visually impaired, orthopedically impaired, traumatic brain injury, autism, and multiple handicapped. Also includes a historical perspective, future populations, and laws that impact special education.

TSE 105 Techniques for Working with Developmentally-Disabled People /2 cr. hrs./3 periods (1 lec., 2 lab)
Basic skills and knowledge for the entry-level habilitation technician. Includes the basic characteristics of mental retardation, epilepsy, cerebral palsy and autism; safety procedures related to client activities; intervention techniques; and the continuum of services available to clients.

TSE 132 Behavior Modification Techniques for Special Education / 3 cr. hrs./3 periods (3 lec.)
Behavior theories and strategies for changing inappropriate behavior through the use of positive reinforcement principles. Includes data collection, principles of reinforcement, schedules of reinforcement, token economies, contracts, modeling, generalization, and program evaluation.

TSE 240 Techniques for Teaching Students with Mental Retardation /3 cr. hrs./3 periods (3 lec.)
Techniques and procedures for teaching students with mental retardation. Includes definitions of the educable/trainable mentally retarded person, etiologies, characteristics, and educational methodologies and teaching techniques.

TSE 245 The Young Child with Disabilities /3 cr. hrs./3 periods (3 lec.)
Causes, characteristics, and intervention techniques for children with disabilities (birth through five). Includes characteristics and stages of learning of the normal child and the identification and educational programming for the child with disabilities.

TSE 255 Characteristics of Behavioral Disorders /3 cr. hrs./3 periods (3 lec.)
Overview of techniques and procedures for teaching students who display behavioral disorders. Includes evaluation strategies and intervention models for managing behaviors.

TSE 265 Adaptive Technology in Special Education /3 cr. hrs./3 periods (3 lec.)
Overview of mechanical and electrical adaptive devices and their application with special needs students. Includes communication, self-help skills, and environmental control independence.

TRAINING IN BEHAVIORAL HEALTH

For courses numbered 098, 198, 298, see "Topics Courses" in index.

TBH 198 Special Topics in Behavioral Health Education /.25-4 credit hours/.25-12 periods (0-4 lec., 0-12 lab)
Customized course to meet the continuing training needs of individuals in the behavioral health field. Includes topics which reflect current issues, trends, and technologies.

TBH 298 Special Advanced Topics in Behavioral Health Education /.25-4 credit hours/.25-12 periods (0-4 lec., 0-12 lab)
Customized course to meet the continuing training needs of individuals in the behavioral health field. Includes advanced topics which reflect current issues, trends, and technologies.

TRANSLATION STUDIES

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.

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.

TRS 297 Translation Studies Seminar /.25-4 cr. hrs./.25-16 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.

TRAVEL INDUSTRY OPERATIONS

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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.

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.

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.

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.

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.
Information: Same as REC 120.

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.

TVL 181 Selling and Marketing Leisure Products /.5-1 cr. hr./.5-1 period (.5-1 lec.)
Introduction to selling and marketing leisure travel products. Includes ecotourism, adventure travel, introduction to specialization, and cruise ship marketing.

TVL 182 The Art of Selling Travel /.5-1 cr. hr./.5-1 period (.5-1 lec.)
Introduction to sales techniques for travel industry professionals. Includes phone selling and listening skills, the formal sales process, client behavior styles, and closing the sale.

TVL 183 How to Market Travel Products /.5-1 cr. hr./.5-1 period (.5-1 lec.)
Introduction to development and implementation of a marketing plan. Includes developing an effective marketing plan, evaluating the local travel industry market, market segmentation, marketing methodology, consumer behavior, and developing new leads.

TVL 184 Destination Certification: Mexico /.5-1 cr. hr./.5-1 period (.5-1 lec.)
Introduction to destination geography, culture, and history of Mexico. Includes the history and politics of the country, geographical highlights, climate, destination attractions, tourist sights, recommended hotels, and tourism infrastructures. Also incorporates the exam for the Destination Specialist Certification for Mexico.

TVL 185 Destination Certification: Caribbean /.5-1 cr. hr./.5-1 period (.5-1 lec.)
Introduction to destination geography, culture, and history of Caribbean. Includes the history and politics of the region, geographical highlights, climate, destination attractions, tourist sights, recommended hotels, and tourism infrastructures. Also incorporates the exam for the Destination Specialist Certification for the Caribbean.

TVL 199 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)
Corequisite(s): Concurrent enrollment in TVL 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.

TVL 199WK Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)
Corequisite(s): Concurrent enrollment in TVL 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.

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.

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.

TVL 210 Leisure Delivery Systems /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): REC/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.
Information: Same as REC 210.

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.

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.

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.
Information: Same as REC 250.

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.
Information: Same as REC 290.

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.

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.

TVL 299 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)
Corequisite(s): Concurrent enrollment in TVL 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.

TVL 299WK Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)
Corequisite(s): Concurrent enrollment in TVL 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.

TRIBAL GOVERNMENT

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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, and fishing, and hunting rights.

TRUCK DRIVER TRAINING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

TDT 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.

TDT 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.

TDT 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.

TDT 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.

TDT 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.

TDT 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.

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.

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.

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,

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.

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.

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.

TDT 114 Inspect and Operate a Tractor-Trailer /3 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.

TDT 115 Safe Driving Techniques /3 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.

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.

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.

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.

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.

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.

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.

VETERINARY TECHNOLOGY
For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

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 BIO 100, MAT 122, VET 100, 130.
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.

VET 111 Veterinary Nursing Procedures II /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): VET 100, 110, 130.
Corequisite(s): Concurrent enrollment in CHM 130, 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.

VET 120 Clinical Pathology I /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): VET 100, 110, 130.
Corequisite(s): Concurrent enrollment in CHM 130, 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.

VET 121 Clinical Pathology II /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): VET 120, 131, 150.
Corequisite(s): OAP 151, VET 200, 205, 210.
Continuation of VET 120. Includes review of laboratory procedures, urinalysis, and cytologic evaluations. Also includes pathogens, parasites, and hematologic evaluations.

VET 130 Animal Anatomy and Physiology I /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): Admission to the Veterinary Technology program.
Corequisite(s): Concurrent enrollment in BIO 100, MAT 122, VET 100, 110.
Anatomy and Physiology of domestic animals. Includes the study of body systems such as skeletal, muscular, integumentary, special sense organs, circulatory and digestive.

VET 131 Animal Anatomy and Physiology II /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): VET 100, 110, 130.
Co-requisite(s): Concurrent enrollment in CHM 130, 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.

VET 150 Pharmacology and Disease /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): VET 100, 110, 130.
Corequisite(s): Concurrent enrollment in CHM 130, VET 111, 120, 131.
Introduction to regulation of biologics and pharmaceuticals. Includes classification, dosage calculations, labeling, logging and packaging of drugs. Also includes principles of disease with an emphasis on diseases of public health significance.

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 BIO 205, SPE 102, VET 121, 205, 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.

VET 205 Radiology and Imaging Techniques /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): VET 111, 120, 131, 150.
Corequisite(s): Concurrent enrollment in OAP 151, VET 121, 200, 210.
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.

VET 210 Veterinary Procedures III /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): VET 111, 120, 131, 150.
Corequisite(s): Concurrent enrollment in BIO 205, OAP 151, VET 121, 200, 205.
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.

VET 211 Veterinary Nursing Procedures IV /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): OAP 151, VET 121, 200, 205, 210.
Corequisite(s): Concurrent enrollment in OAP 251, VET 220, 225.
Continuation of kennel responsibilities with an introduction to avian, exotic and laboratory animal care. Includes the care and management of laboratory animals, diseases, nursing procedures, preventative health care and restraint.

VET 220 Clinical Pathology III /3 cr. hrs./4 periods (2 lec., 2 lab)
Prerequisite(s): OAP 151, VET 121, 200, 205, 210.
Corequisite(s): Concurrent enrollment in OAP 251, VET 211, 225.
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.)
Prerequisite(s): OAP 151, VET 121, 200, 205, 210.
Corequisite(s): Concurrent enrollment in OAP 251, VET 211, 220.
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.

VET 291 Veterinary Technical Clinical Experience /3 cr. hrs./7 periods (7 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.

WELDING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

WLD 110 Basic Arc and Oxyacetylene Welding /3 cr. hrs./5 periods (2 lec., 3 lab)
Procedures and techniques in arc and oxyacetylene welding. Includes health, safety, and environmental practices, welding terminology, arc and oxyacetylene welding equipment, oxyacetylene flame cutting, proper welding procedures for arc and oxyacetylene, arc and oxyacetylene steel welding, welding machines and polarities, filler metal identification, and welding positions.

WLD 115 Blueprint Reading/Estimating /4 cr. hrs./4 periods (4 lec.)
Prerequisite(s): MAT 082 or satisfactory score on math assessment test.
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 and specifications, labor, structural steel systems, and steel fabrication checklist.

WLD 119 Pattern Layout for Pipe Fabrication /3 cr. hrs./5 periods (2 lec., 3 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.

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.

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, equipment, joints, flame cutting, pipe and braze welding, expansion and contraction, hardfacing, cast and galvanized iron, stainless steel and silver soldering.

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, power sources, carbon arc cutting, filler metal selection, hard facing, and metal identification.

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.

WLD 250 Pipe Welding /4 cr. hrs./6 periods (2 lec., 4 lab)
Prerequisite(s): WLD 119, 160 or welding 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, and preparation and methods of welding test plate.

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.

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.

WLD 297 Welding Seminar /.25-4 cr. hrs./.25-16 periods (.25-4 lec., .25-12 lab)
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.

WOMEN'S STUDIES

For courses numbered 098, 198, 298, see "Topics Courses" in index.

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.

WRITING

For courses numbered 098, 198, 298, see "Topics Courses" in index.

WRT 070 Developmental Writing /3 cr. hrs./3 periods (3 lec.)
Training in fundamental writing skills. Includes sentence development and structure, writing a variety of sentences, and writing short papers.

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.

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.

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.

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.

WRT 073 Punctuation /1 cr. hr./1 period (1 lec.)
Review of punctuation mechanics. Includes rules of punctuation, punctuation mark usage, and written assignments.

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.

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.

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.

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.

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 the writing process, designing and writing effective paragraphs, and writing longer papers.

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.

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.

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.

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 descriptive, expository, and persuasive writing.

WRT 101A Writing I: Module A /1 cr. hr./1 period (1 lec.)
Prerequisite(s): WRT 100 or satisfactory score on writing assessment test.
Practice in structuring college-level essays. Includes the writing process, rhetorical analysis, and narrative and descriptive strategies.
Information: WRT 101A, 101B, and 101C together constitute WRT 101.

WRT 101B Writing I: Module B /1 cr. hr./1 period (1 lec.)
Prerequisite(s): WRT 101A.
Practice in writing essays on selected themes. Includes the following strategies: illustration, comparison and contrast, definition and analysis.
Information: WRT 101A, 101B, and 101C together constitute WRT 101.

WRT 101C Writing I: Module C /1 cr. hr./1 period (1 lec.)
Prerequisite(s): WRT 101B.
Practice in writing argumentative essays. Includes principles of argumentation, library research and writing from sources. Also includes writing an in-class essay.
Information: WRT 101A, 101B, and 101C together constitute WRT 101.

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.

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 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.

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 writing assessment test.
Module A constitutes approximately the first one-third of WRT 106.
Information: Equivalent to WRT 100A.

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.

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.

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.

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.

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.

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.

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 international students. 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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 writing, critical response to nonfiction, and marketing techniques.
Information: May be taken four times for a maximum of twelve credit hours.

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.

WRT 254 Advanced Professional Communications /3 cr. hrs./3 periods (3 lec.)
Prerequisite(s): WRT 102, 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.

WRT 254A Advanced Professional Communications: Module A /1 cr. hr. /1 period (1 lec.)
Prerequisite(s): WRT 102, 154.
Module A constitutes approximately the first one-third of WRT 254.
Information: WRT 254A, 254B, and 254C together constitute WRT 254.

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.

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.

WRT 281 Beginning Workshop in Tutoring Composition /1 cr. hr./ 3 periods (3 lab)
Prerequisite(s): WRT 101, 102.
Introductory workshop in tutoring composition. Includes instruction and practice in tutoring techniques.

WRT 282 Intermediate Workshop in Tutoring Composition /1 cr. hr./ 3 periods (3 lab.)
Prerequisite(s): WRT 281.
Continuation of WRT 281. Includes improvement of tutoring skills. Also includes additional instruction and practice in tutoring techniques.

WRT 285 Pima Writers' Workshop /2 cr. hrs./2 periods (2 lec.)
Writing of fiction 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.

YAQUI

For courses numbered 098, 198, 298, see "Topics Courses" in index

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.

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.

Workforce Response Programs and Courses

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
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 54.

Analysis and Critical Thinking Requirement 3
  See General Education section, page 54.

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 **22-65**

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 54.

Analysis and Critical Thinking Requirement 6
See General Education section, page 54.

Humanities and Social Science Requirement 6
See General Education section, page 54.

Computer and Information Literacy Requirement 1-3
See General Education section, page 54.

Subtotal **19-21**

Course Number	Course Title	Credit Hours
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
Required Core Courses - A grade of C or better is required for graduation.		
COR 110	County Correctional Officer Training Academy	18
Total credits as displayed		18

Pima County Juvenile Court Center's Detention Facility Supervision & 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 in the Online Catalog – www.pima.edu.

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
Total credits as displayed		12
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
Total credits as displayed		11-12

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
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.
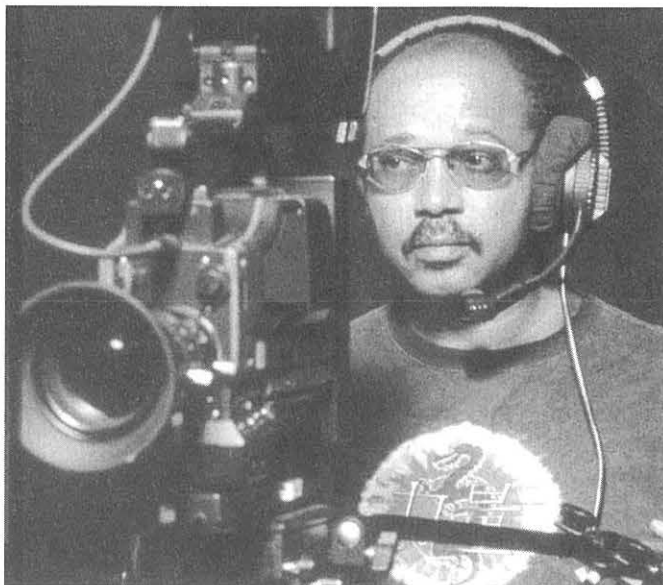
Basic Law Enforcement-Supervision — Certificate for Direct Employment

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
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
Total credits as displayed		**16**

*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 54.

Humanities and Social Science Requirement 6
    See General Education section, page 54.

Computer and Information Literacy Requirement ....†
    LEN 150 and LEN 163 fulfill this requirement.

Subtotal **10**

Course Number	Course Title	Credit Hours
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
Subtotal		**36**

Course Number	Course Title	Credit Hours
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	3
AJS 225	Crime and Delinquency	3
AJS 246	Race & Ethnicity Issues in the Administration of Justice	3
MAT 142*	Topics in Mathematics	3
WRT 101*	Writing I	3
WRT 102*	Writing II	3
Subtotal		**24**
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
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 an additional 3 Safety (SAF prefix) courses.		
Total credits as displayed		**3.25-9.5**

Community Track

Course Number	Course Title	Credit Hours
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 an additional 2 Safety (SAF prefix) courses		
Total credits as displayed		**1.75 - 8**

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 & Rapid Treatment (START) Triage . . .25-.5
SAF 243* Critical Incident Stress Management (CISM) 25-.5

Support Courses

Select an additional 3 Safety (SAF prefix) courses
Total credits as displayed 3.25-8.5

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 & Structural Threat
Assessment . . . . .5 - 1
SAF 242* Traffic, Crowd Control, and Protective
Equipment for an Emergency . . . . .25 - .5
SAF 243* Critical Incident Stress Management (CISM) . . . . . .25 -.5

Support Courses

Select an additional 3 Safety (SAF prefix) courses. . . . .
Total credits as displayed 3.25-12

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 25-1

Support Courses

Select an additional 3 Safety (SAF prefix) courses
Or
take FSC 153, Hazardous Materials and select an
additional 2 Safety (SAF prefix) courses
Total credits as displayed 1.75-7.0

* This course has a prerequisite, co-requisite, or recommendation. See course description in the Online Catalog – www.pima.edu.

Basic Microcomputer Repair — Certificate for Direct Employment

This program is taught in conjunction with the State of Arizona and is not open to the general public. Those students interested in a program in microcomputer assembly/repair should refer to Technology-Microcomputer Technology in the program section of this catalog.

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
CSA	101	Computer Fundamentals	3
CIS	100	Introduction to Computers and Information Systems	3
CIS	108	Microcomputer Operating Systems	3
ETR	130	Microcomputer Assembly and Testing	4
WRT	150	Practical Communications	3
Total credits as displayed			**16**

Technical Microcomputer Repair — Certificate for Direct Employment

This program is taught in conjunction with the State of Arizona and is not open to the general public. Those students interested in a program in microcomputer assembly/repair should refer to Technology-Microcomputer Technology in the program section of this catalog.

**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 54.
Analysis and Critical Thinking Requirement 3
See General Education section, page 54.
Subtotal 6

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
CSA	101	Computer Fundamentals	3
CIS	100	Introduction to Computers and Information Systems	3
CIS	108	Microcomputer Operating Systems	3
ETR	101	Basic DC Electronic Circuit Analysis	3
ETR	110	Digital Electronics	3
ETR	130	Microcomputer Assembly and Testing	4
ETR	132	Microcomputer Systems Servicing	3
ETR	210	Local Area Network (LAN) Servicing	3
Subtotal			**25**
Required Support Courses			
ETR	290	Microcomputer Repair Internship	
or	299	Co-op Related Class in ETR	
and	299WK	Co-op Work in ETR	2-3
Subtotal			**2-3**
Total credits as displayed			**33-34**

Social Services Family Support Services — Certificate

Course Number		Course Title	Credit Hours
Required Core Courses - A grade of C or better is required for graduation.			
ECE	107	Human Development and Relations	3
SSE	110	Introduction to Social Welfare	3
SSE	111	Group Work	3
SSE	210	Community Organization and Development	3
SSE	242	Crisis Intervention, Theory and Techniques	3
STU	110	Developing Self-Esteem	2
Total credits as displayed			**17**

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 which 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 & Phone Number	Course Prefix

Southeastern Arizona Carpenters Joint Apprenticeship & Training Committee
Carpentry:
622-8155 . . . . .CRP

Custodial Development (University of Arizona)
Custodial:
626-4915 or 241-6960 . . . . .CUA

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
Sheetmetal:
(602)273-1388 or (602)527-0428 . . . . .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 an associate of applied science degree (trade and industrial technology option) must meet the minimum degree requirement of 60 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 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 /1-3 cr. hrs./1-3 periods (1-3 lec.)

DBM 104 Electrical Codes and Inspection /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 (3 lec., 3 lab)

DBM 133 Residential and Industrial HVAC III /4 cr. hrs./6 periods (3 lec., 3 lab)

DBM 134 Residential and Industrial HVAC IV /4 cr. hrs./6 periods (3 lec., 3 lab)

DBM 150 Braze Welding /1 cr. hr./2 periods (1 lec., 1 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.)

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.)

Sheetmetal

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.)

Law Enforcement and Public Safety

The courses listed below in Corrections (COR), Juvenile Corrections (JVC), Law Enforcement (LEN), and Public Safety (SAF), are designed for delivery under a contractual basis to different agencies throughout Pima County and the State of Arizona. They are generally not open to the public and students usually must be employees of the contracted agency.

CORRECTIONS

COR 102   Communicating in Spanish for the Workplace /1-6 cr. hrs./ 1-6 periods (1-6 lec.)

COR 110   County Correctional Officer Training Academy /18 cr. hrs./ 18 periods (18 lec.)

COR 115   Corrections Training Officer /3 cr. hrs./3 periods (3 lec.)

COR 140   Introduction to Federal Corrections /9 cr. hrs./9 periods (9 lec.)

COR 160   Correctional System Ethics and Professionalism /1 cr. hr./1 period (1 lec.)

COR 162   Introduction to Inmate Management /3 cr. hrs./3 periods (3 lec.)

COR 164   Correctional Information Systems /1 cr. hr./1 period (1 lec.)

COR 166   Correction Officers Safety and Weapons Training /2 cr. hrs./ 4 periods (1 lec., 3 lab)

COR 168   Inmate Security Procedures /2 cr. hrs./2 periods (2 lec.)

COR 170   Security, Custody, and Control Procedures /2 cr. hrs./ 2 periods (2 lec.)

COR 172   Conflict and Crisis Management /2 cr. hrs./2 periods (2 lec.)

COR 176   Medical and Mental Health /2 cr. hrs./2 periods (2 lec.)

COR 178   Physical Fitness and Self Defense Training /3 cr. hrs./ 3 periods (3 lec.)

COR 205   Law Enforcement for the Correctional Peace Officer / 3 cr. hrs./3 periods (3 lec.)

COR 220   Mental Health and Juvenile Certificate Training /3 cr. hrs./ 3 periods (3 lec.)

COR 281   Field Officer Training /2 cr. hrs./2 periods (2 lec.)

JUVENILE CORRECTIONS

JVC 102   Communicating in Spanish for the Workplace /1-6 cr. hrs./1-6 periods (1-6 lec.)

JVC 105   Classroom Aide /3 cr. hrs./3 periods (3 lec.)

JVC 110   Youth Contact Staff Fundamentals /2 cr. hrs./2 periods (2 lec.)

JVC 115   Introduction to Youth Supervision /5 cr. hrs./5 periods (5 lec.)

JVC 120   Health and Safety Services for Youth /3 cr. hrs./3 periods (3 lec.)

JVC 180   Dentention Officer Certification /12 cr. hrs./12 periods (12 lec.)

JVC 181   Classification Pods /3 cr. hrs./3 periods (3 lec.)

JVC 182   General Population Pods /3 cr. hrs./3 periods (3 lec.)

JVC 183   Administrative Segregation Pods /3 cr. hrs./3 periods (3 lec.)

JVC 190   Youth Corrections Field Experience /1-3 cr. hrs./5-15 periods (5-15 lab)

LAW ENFORCEMENT

LEN 100   Careers in Law Enforcement /3 cr. hrs./3 periods (3 lec.)

LEN 102   Communicating in Spanish in the Workplace /1-6 cr. hrs./ 1-6 periods (1-6 lec.)

LEN 105   Ethics and Leadership in Law Enforcement /3 cr. hrs./3 periods (3 lec.)

LEN 110   Multicultural Issues in Law Enforcement /3 cr. hrs./3 periods (3 lec.)

LEN 115   Interpersonal Relations in Law Enforcement /3 cr. hrs./3 periods (3 lec.)

LEN 120   Introduction to Law Enforcement /1 cr. hr./1 period (1 lec.)

LEN 125   Law and Legal Matters I /3 cr. hrs./3 periods (3 lec.)

LEN 126   Law and Legal Matters II /3 cr. hrs./3 periods (3 lec.)

LEN 130   Patrol Procedures /3 cr. hrs./3 periods (3 lec.)

LEN 131   Mobile Field Force /1.5 cr. hrs./2 periods (1 lec., 1 lab)

LEN 135   Traffic Enforcement and Investigation /3 cr. hrs./3 periods (3 lec.)

LEN 140   Criminal Investigation /4 cr. hrs./4 periods (4 lec.)

LEN 145   Community and Police Relations /2 cr. hrs./2 periods (2 lec.)

LEN 150   Records and Reports /2 cr. hrs./2 periods (2 lec.)

LEN 154   Federal Law Enforcement Operations for Border Patrol /4 cr. hrs./4 periods (4 lec.)

LEN 155   Immigration and Nationality Law for Border Patrol /3 cr. hrs./3 periods (3 lec.)

LEN 159   Firearms and Unusual Weapons /1 cr. hr./1 period (1 lec.)

LEN 160   Life Management Skills for Law Enforcement /3 cr. hrs./3 periods (3 lec.)

LEN 163   Research and Planning /3 cr. hrs./3 periods (3 lec.)

LEN 180   Introduction to Private Security /3 cr. hrs./3 periods (3 lec.)

LEN 181   Loss Prevention and Plain Clothes Security /3 cr. hrs./3 periods (3 lec.)

LEN 190   Field Supervision /3 cr. hrs./15 periods (15 lab)

LEN 191   Pima Community College DPS Field Officer Training /3 cr. hrs./15 periods (15 lab.)

LEN 205   Police Proficiency Skills I /3 cr. hrs./3 periods (3 lec.)

LEN 206   Police Proficiency Skills II /3 cr. hrs./3 periods (3 lec.)

LEN 207   Police Proficiency Skills III /3 cr. hrs./3 periods (3 lec.)

LEN 208   Police Proficiency Skills IV /3 cr. hrs./3 periods (3 lec.)

LEN 215   Post-Basic Academy /4 cr. hrs./4 periods (4 lec.)

LEN 250   Basic Follow-Up Investigations /3 cr. hrs. 3 periods (3 lec.)

LEN 251   Internal Investigations /3 cr. hrs./3 periods (3 lec.)

LEN 260   Final Analysis in Criminal Justice /4 cr. hrs./4 periods (4 lec.)

LEN 270   Principles of Law Enforcement Supervision /3 cr. hrs./3 periods (3 lec.)

LEN 271   Skills for Community Oriented Policing /4 cr. hrs./4 periods (4 lec.)

LAW ENFORCEMENT (continued)

LEN 274   Supervision of Community Oriented Policing /3 cr. hrs./3 periods (3 lec.)

LEN 280   General Instructor /3 cr. hrs./3 periods (3 lec.)

LEN 281   Field Officer Training /2 cr. hrs./2 periods (2 lec.)

LEN 282   Incident Command Instructor /1 cr. hr./1 period (1 lec.)

LEN 290   Law Enforcement Field Experience /3 cr. hrs./15 periods (15 Recitation)

SAFETY

SAF 101   Basic Concepts of Preparedness for Natural Disasters / .25 cr. hr./.25 period (.25 lec.)

SAF 103   School Preparedness /1 cr. hr./1 period (1 lec.)

SAF 105   Community Preparedness /.25 cr. hr./.25 period (.25 lec.)

SAF 107   Industry Preparedness /1 cr. hr./1 period (1 lec.)

SAF 109   Basic Emergency Response Using a Defibrillator /.25 cr. hr./.25 period (.25 lec.)

SAF 110   Community Emergency Response Team (CERT) / 2 cr. hrs./2 periods (2 lec.)

SAF 200   Safety Supervisor /2 cr. hrs./2 periods (2 lec.)

SAF 201   Emergency Response to Terrorism: Self Study /.5 cr. hr./.5 period (.5 lec.)

SAF 202   Emergency Response to Terrorism: Basic Concepts /.5-1 cr. hr./.5-1 period (.5-1 lec.)

SAF 204   Incident Command System (IMS) /.5-1 cr. hr./.5-1 period (.5-1 lec.)

SAF 205   Patterns of Domestic and Global Terrorism /.5 cr. hr./.5 period (.5 lec.)

SAF 206   Metropolitan Emergency Response Systems Implementation /.25-.5 cr. hr./.25-.5 period (.25-.5 lec.)

SAF 230   Mass Decontamination /.5 cr. hr./.5 period (.5 lec.)

SAF 231   Chemistry of Weapons of Mass Destruction /.5 cr. hr./ .5 period (.5 lec.)

SAF 232   Incident Command System for Emergency Medical Services /.5 cr. hr./.5 period (.5 lec.)

SAF 233   Incident Command System for Haz-Mat Command Systems /.5 cr. hr./.5 period (.5 lec.)

SAF 234   Simple Triage and Rapid Treatment (START) Triage / .5 cr. hr./.5 period (.5 lec.)

SAF 235   Emergency Response to Terrorism: Tactical Considerations /1 cr. hr./1 period (1 lec.)

SAF 237   Emergency Operations Center /.5 cr. hr./.5 period (.5 lec.)

SAF 240   Explosive Devices /.5 cr. hr./.5 period (.5 lec.)

SAF 241   Target Vulnerability and Structural Threat Assessment / .5 cr. hr./.5 period (.5 lec.)

SAF 242   Traffic, Crowds, and Protective Equipment /.5 cr. hr./ .5 period (.5 lec.)

SAF 243   Crisis and Incident System Management (CISM) / .25-.5 cr. hr./.25-.5 period (.25-.5 lec.)

SAF 244   FEMA: Terrorism Survey /.5 cr. hr./.5 period (.5 lec.)

SAF 245   FEMA: Emergency Response to a Criminal/Terrorist Incident /.5 cr. hr./.5 period (.5 lec.)

SAF 246   History, Ideology and Tactics of al-Qaida /.25 cr. hr./.25 period (.25 lec.)

SAF 248   Critical Incident Stress /1-3 cr. hrs./1-3 periods (1-3 lec.)

SAF 250   Medical Response to Weapons of Mass Destruction / .25 cr. hr./.25 period (.25 lec)

SAF 251   Infection Control /.25 cr. hr./.25 period (.25 lec.)

SAF 252   Agents of Weapons of Mass Destruction /.25-1 cr. hr./ .25-1 period (.25-1 lec.)

SAF 253   Emergency Patient Decontamination /.5 cr. hr./.5 period (.5 lec.)

SAF 254   Responding to Weapons of Mass Destruction Mass Casualties /.5 cr. hr./.5 period (.5 lec.)

SAF 260   Dispatcher Readiness /.5 cr. hr./.5 period (.5 lec.)

SAF 270   Domestic Preparedness Practicum /1 cr. hr./.1 period (1 lec.)

SAF 280   OSHA General Industry: Ten/1 cr. hr./1 period (1 lec.)

SAF 281   Safety and Health in the Workplace /1 cr. hr./1 period (1 lec.)

Selected Policies, Governance and Faculty
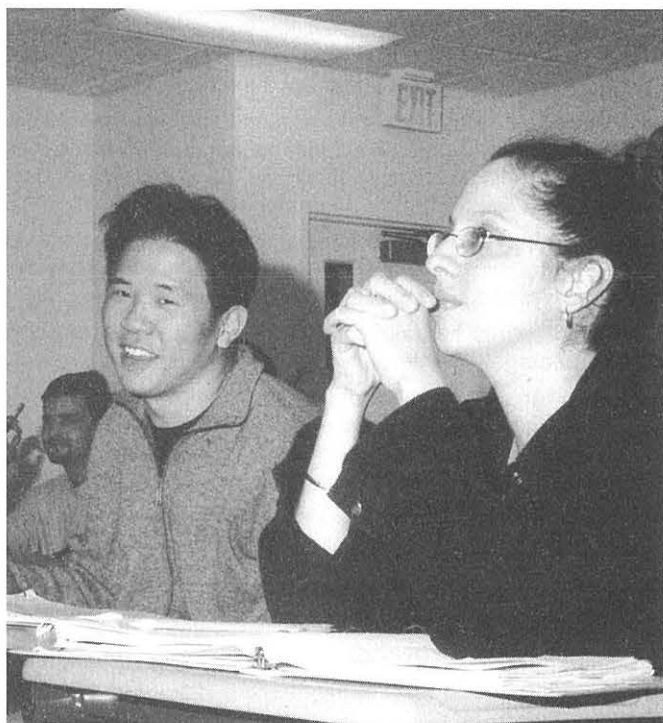
If You Have a Problem...

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 whether in the classroom or in student support areas. The *Student Rights and Responsibilities* booklet and the *Student Handbook* outline procedures for appealing grades or code of conduct penalties. However, students with general complaints should see either the campus dean of instruction or the campus dean of student development for guidance in resolving problems.

Selected Board Policies

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 Central 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 willing-

ness 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.
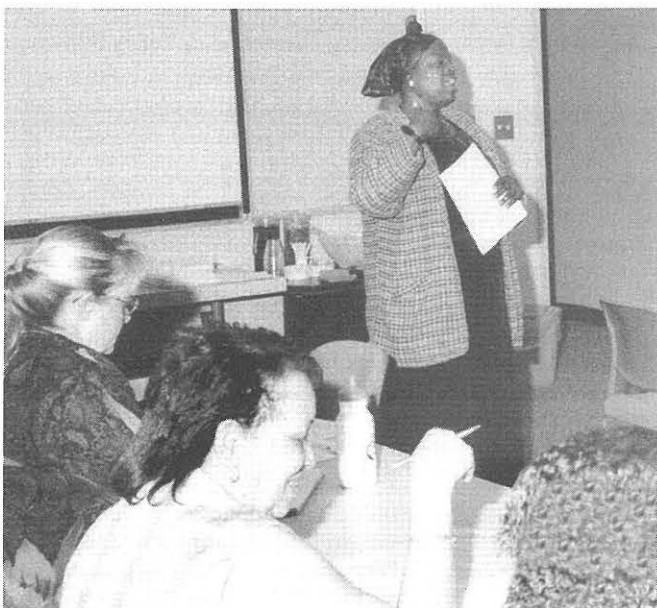
Any member of the College community, especially administrators and supervisors, who believes that the actions or words of any other member of the College community constitute harassment has a responsibility to report the complaint as soon as possible. Issues of harassment covered by EEO laws should be 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 Intake Interviewers

Community Campus
Linda Cordier	206-6516
Darlene Rogers	206-6578

Desert Vista Campus
Gracie Dominguez	206-5210
Linda Hock	206-5126
Don Shaffer	206-5015

Downtown Campus
Mary Jane Bojorquez	206-7246
Catherine Madrid	206-7078
Tony Taylor	206-7286

East Campus
Dan Offret	206-7650
Anna Richards	206-7626

West Campus
Ana Angulo	206-6648
Shirley Bemis	206-6769
Bodel Romero	206-6030

District Central Office
Rosa Valenzuela	206-4639

District Support Service Center
Albert Quihuis	206-2705
Theresa Roach	206-2671
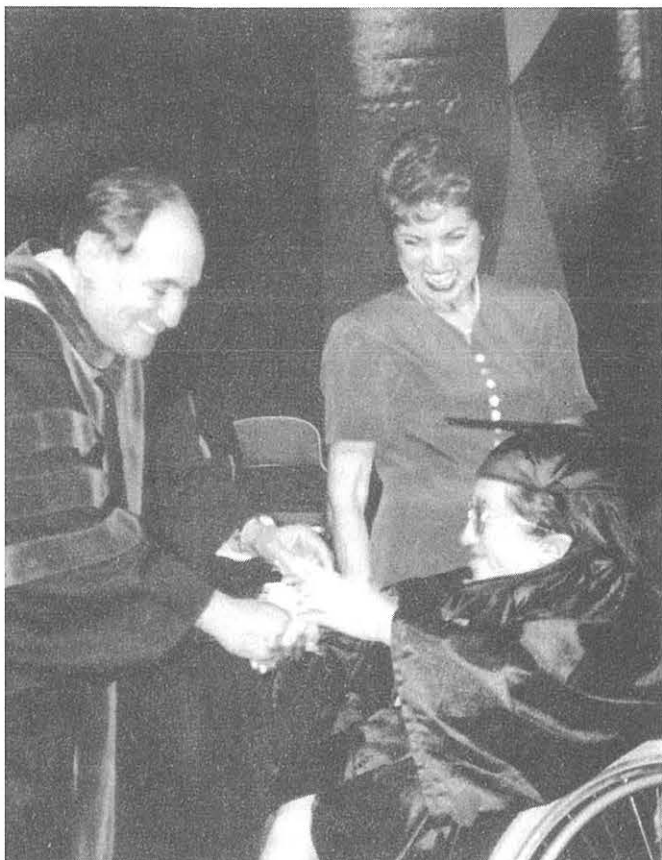
Americans with Disabilities Act

The PCC Board of Governors endorses the philosophy of all state and federal laws providing for equal employment opportunity.

Whereas, now the Congress of the United States has passed a new law, the Americans with Disabilities Act (ADA), to provide "a clear and comprehensive mandate for the elimination of discrimination against individuals with disabilities," and,

Whereas, this governing board endorses the philosophy that no qualified individual should be excluded from jobs, services, activities, or benefits based upon disabilities over which they have no control; and,

Whereas, it is the desire of this governing board to make clear its commitment that the Pima County Community College District shall comply with the provisions of the Americans with Disabilities Act;

Now, therefore, be it resolved that the Pima County Community College District, acting through its governing board in this resolution, hereby declares its support of the Americans with Disabilities Act and its corporate intention to comply with the terms thereof, and further, hereby directs the Chancellor of the District to formulate and implement a plan to assure compliance with the terms of said act.

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

	Term Expires
Dr. Brenda B. Even	District 1, Dec. 2008
Richard G. Fimbres	District 2, Dec. 2004
Sherryn S. Marshall	District 3, Dec. 2006
Scott A. Stewart	District 4, Dec. 2004
Marty Cortez	District 5, Dec. 2006

College District Administrators

Dr. Roy Flores, Chancellor

Dr. Richard E. Durán, Vice Chancellor for Academic Affairs and Student Development

Charlotte A. Fugett, Vice Chancellor for Human Resources

John Gabusi, Vice Chancellor for Enrollment Services and External Relations

Dr. John A. Roberts, Interim Vice Chancellor for Finance and Administrative Services

Jana B. Kooi, Campus President, Community Campus

Dr. Miguel A. Palacios, Campus President, Desert Vista Campus

Dr. Mary E. Retterer, Campus President, East Campus

Dr. Noelia Vela, Campus President, Downtown Campus

Dr. Angela Zerdavis, Interim Campus President, Northwest Campus

Dr. Louis Albert, Campus President, West Campus

District Central Office

Office of the Chancellor

Dr. Roy Flores, Chancellor
B.S., M.S. Indiana State University; Ph.D. Iowa State University

Ann Strine, Assistant Vice Chancellor for Information Technology
B.A. Texas Christian University; M.A. Indiana University

Philanne Y. Burke, Senior Assistant to the Chancellor
B.A. University of Kansas; M.A. University of Arizona

Office of the Vice Chancellor for Educational Planning and Development

Dr. Richard E. Durán, Vice Chancellor for Academic Affairs and Student Development
B.A., M.A. Adams State College; Ed.D. University of Northern Colorado

Dr. Eleanor Brown, Assistant Vice Chancellor for Student Development
B.A. University of Alaska; M.A., Ph.D. University of Texas-Austin

Dr. Philip Silvers, Assistant Vice Chancellor for Research and Planning
B.A., M.A. St. Paul Seminary; Ph.D. University of Arizona

Community Campus

Jana B. Kooi, Campus President
B.A. Calvin College; M.A. Western Michigan University

Sarah Dempsey, Dean of Instruction
B.S., M.S. Marshall University

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 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 Business and Industry Training
B.S., Central Michigan University; M.Ed. University of Arizona

Dr. Cynthia M. Meier, Division Dean of Pima College Adult Education
B.S., M.A. Eastern Michigan; Ph.D. University of Arizona

Desert Vista Campus

Dr. Miguel Palacios, Campus President
B.A., M.A., Ph.D. University of Arizona

Dr. John R. Madden, Dean of Instruction
B.A., M.A. Western Michigan University; Ed.D University at Albany

Shelley J. Fortin, Dean of Student Development
B.A. Stonehill College; M.A., American International College

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, Acting 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

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

Robert G. House, Senior Assistant for Policy and Governance
B.A. University of Texas at Austin; M.S. North Texas State University

Michael J. Duran, Executive Director, Pima Community College Foundation
B.S., J.D. University of Arizona

Office of the Vice Chancellor for Finance and Administrative Services

Dr. John A. Roberts, Interim Vice Chancellor for Finance and Administrative Services
B.S. University of Arizona; Ed.D., Ph.D. University of Southern California

Jacalyn A. Askin, Assistant Vice Chancellor for Financial Operations
B.A. Lehigh University; M.S. Georgia Institute of Technology; M.A. University of Iowa

Paul F. Smith, Assistant Vice Chancellor for Administrative Services and Facilities
B.S. University of Arizona; M.S. Georgia College

Office of the Vice Chancellor for Human Resources

Charlotte A. Fugett, Vice Chancellor for Human Resources
B.S. Longwood College; M.B.A. University of Richmond

John F. Redavid, Assistant Vice Chancellor for Human Resources
B.A. University of Arizona

East Campus

Dr. Mary E. Retterer, Campus President
B.A., M.B.A. California State University-San Bernardino;
Ph.D. University of Texas-Austin

Dr. Suzanne L. Miles, Dean of Instruction
B.S. Northwestern University; M.A. Arizona State University;
Ph.D. University of Arizona

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

Jeannette Studer, Division Dean of Instruction for Educational Services
B.A., M.S. University of Wyoming

Jo Ann Rust, Division Dean of Instruction
B.S. University of Utah; M.S. University of Arizona

Northwest Campus

Dr. Angela Zerdavis, Interim Campus President
Certificate Beijing Normal University; B.A. University of Illinois;
M.A. California State University; Ed.D. Brigham Young University

Dr. Sylvia M. Lee, Dean of Student Development
B.A., M.Ed. University of Arizona; Ph.D. Arizona State University

Dr. Rosemarie Schulz, Dean Science of Instruction
B.A., M.S. University of Wisconsin; Ph.D University of Wisconsin

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

Dr. Michael J. Dimino, Acting Dean of Instruction
B.S. Villanova University; Ph.D. Rutgers University

Nancee J. Sorenson, Dean of Student Development
B. S., M.S. Indiana State University

Hoyt L. Keeney, Dean of Athletics/Fitness and Sport Sciences
B.A., M.Ed. Oregon 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

Mary E. Elasowich, Division Dean Student Support Services
B.A. University of Massachusetts; M.A. Assumption College

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, Acting 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

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. Bulikowski, 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

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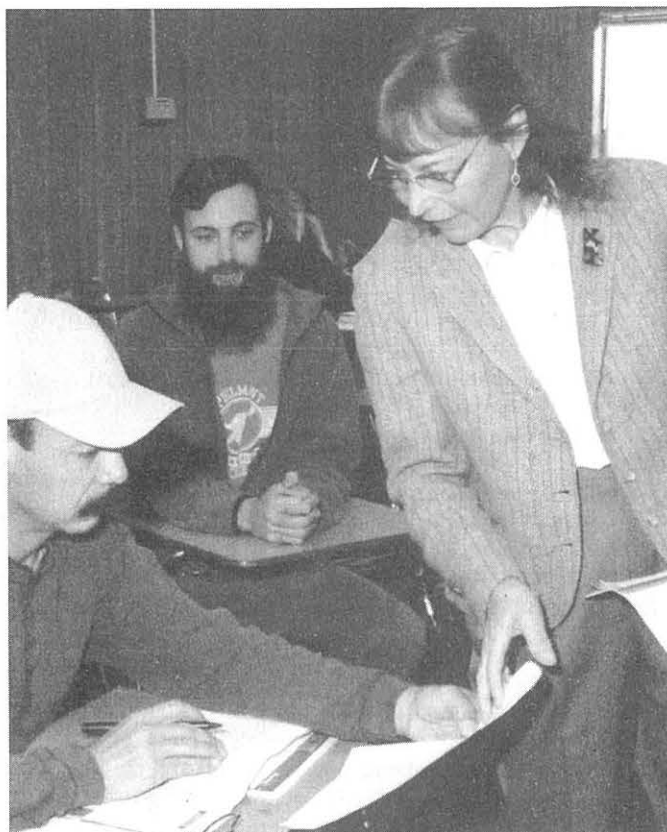
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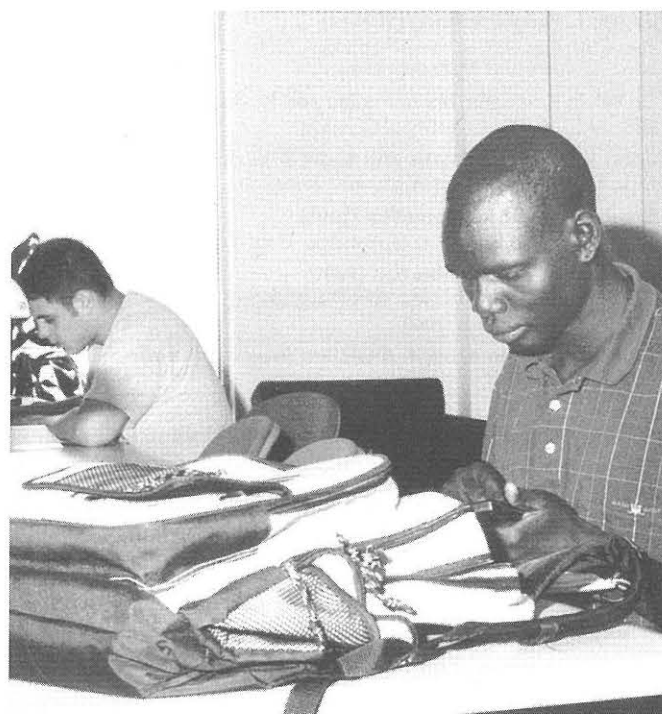
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